


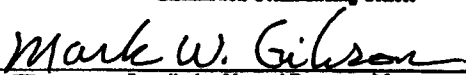
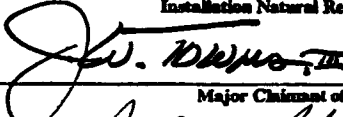
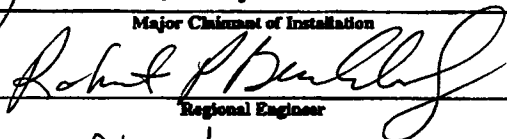
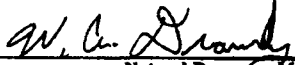
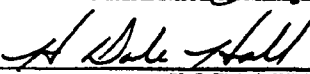

**NAVAL AIR STATION PENSACOLA COMPLEX
PENSACOLA, FLORIDA
INTEGRATED NATURAL
RESOURCES MANAGEMENT PLAN
2000 - 2010**

This Integrated Natural Resources Management Plan (INRMP) supersedes previous Natural Resources Plans. The Sikes Act Improvements Act of 1997 require that the proposed INRMP be prepared in cooperation with the U.S. Fish & Wildlife Service and the State Fish & Wildlife Agency and that the management of fish and wildlife in this INRMP reflect mutual agreement of the parties. Mutual agreement is required only with respect to those elements of this Plan that are subject to the otherwise applicable legal authority (i.e., authority derived from a source other than the Sikes Act, such as the Endangered Species Act) of the U. S. Fish & Wildlife Service and the State Fish & Wildlife Agency to conserve, protect, and manage fish and wildlife resources.

To the extent that resources permit, the U.S. Fish & Wildlife Service, Florida Fish and Wildlife Conservation Commission, and Naval Air Station Pensacola Complex, Pensacola (NASP Complex) by signature of their agency representative, do hereby agree to enter a cooperative program for the conservation, protection and management of fish and wildlife resources on NASP Complex. The intention of this agreement is to develop functioning, sustainable ecological communities on NASP Complex that integrates the interests and mission of the agencies charged with conservation, protection, and management of national heritage in the public interest. This agreement may be modified and amended by mutual agreement of the authorized representatives of the three agencies. The agreement will become effective upon the date subscribed by the last signatory and shall continue in full force for a period of ten years or until terminated by written notice to the other parties, in whole or in part, by any of the parties signing this agreement.

By their signatures below, or an enclosed letter of concurrence, all parties grant their concurrence and acceptance of the following document.

Approving Officials:

 _____ Installation Commanding Officer	15 Nov 01 _____ (Date)
 _____ Installation Natural Resources Manager	13 Nov 2001 _____ (Date)
 _____ Major Chairman of Installation	20 DEC 2001 _____ (Date)
 _____ Regional Engineer	13 Nov 2001 _____ (Date)
 _____ Natural Resources Manager - Southern Division	11/7/01 _____ (Date)
 _____ U. S. Fish & Wildlife Service	11/7/01 _____ (Date)
 _____ Florida Fish and Wildlife Conservation Commission	11-06-01 _____ (Date)

Executive Summary

ES.1 Type of Document

This is an Integrated Natural Resources Management Plan (INRMP).

ES.2 Purpose of Document

The purpose of this document is to meet statutory requirements under the Sikes Act Improvement Act (SAIA), Public Law 105-85, Div. B. Title XXIX, Nov. 18, 1997, 111 Stat 2017-2019, 2020-2022. In November 1997, the Sikes Act, 16 U.S.C. § 670a et seq., was amended to require the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military Installations. To facilitate this program, the amendments require the Secretaries of the military departments to prepare and implement INRMPs for each military Installation in the United States unless the absence of significant natural resources on a particular Installation makes preparation of a plan for the Installation inappropriate. The Act mandates that all military Installations prepare and implement an INRMP by November 17, 2001. The United States Department of the Navy (DoN) has prepared this INRMP for the Naval Air Station Pensacola (NASP) Complex, Florida.

ES.3 Goals and Objectives of the INRMP

The goal of the INRMP is to implement an ecosystem-based conservation program that provides for conservation and rehabilitation of natural resources in a manner consistent with the military mission; integrates and coordinates all natural resources; provides for sustainable multipurpose uses of natural resources; and provides public access for use of natural resources subject to safety and military security considerations. The INRMP covers a period of 10 years. Five Installation-wide ecosystem management goals and 17 objectives have been identified for the NASP Complex. The objectives developed to implement each goal are identified to a natural resources issue facing the Installation. Following are the goals, issues, and objectives for the NASP Complex.

Goal 1: Protect and maintain the natural resources within the NASP Complex through the continuation and enhancement of ecologically appropriate and beneficial land use and management practices, while ensuring the continuation of the military mission.

Issue: As development and training activities have a significant potential to affect land area at the NASP Complex, land management decisions and practices will become increasingly important aspects of ecosystem management. The use and management of lands for military mission needs, and the decision-making process regarding such land use, directly affect the sustainability of the ecosystem. To protect and maintain natural resources while ensuring the continuation of the military mission, the NASP Complex needs to implement programs to meet the following objectives:

Objective 1.1: Continue existing, and establish new programs and procedures to monitor, maintain, and enhance wetlands and water quality;

Objective 1.2: Reduce and control invasive and exotic species;

Objective 1.3: Maintain the attenuation capacity of the remaining undisturbed acreage within the 100-year floodplain;

Objective 1.4: Ensure that land management and land use decisions comply with all applicable laws, executive orders, regulations, directives, and instructions, and that adverse impacts to the natural environment are minimized;

Objective 1.5: Protect and enhance shorelines through existing and new programs; and

Objective 1.6: Implement environmentally beneficial landscaping, grounds maintenance, and urban forestry practices.

Goal 2: Protect and enhance forest resources by practicing ecologically-sound forest management leading to sustained yield of quality forest products, watershed protection, and wildlife habitat.

Issue: The NASP Complex manages approximately 2,486 acres of forestland. To protect and enhance forest resources by practicing ecologically-sound forestland management, while ensuring sustainability of commercial products, the NASP Complex needs to implement programs to address the following objectives:

Objective 2.1: Practice the ecosystem management concept for sustained yield of forest products and forest health;

Objective 2.2: Manage forests in an ecologically-sound way to provide habitat for wildlife; and

Objective 2.3: Manage forest stands for watershed protection.

Goal 3: Protect, maintain, and restore native communities for plant and animal life, while improving the quality of life and ensuring the continuation of the military mission.

Issue: Little of the native communities that originally occurred at the NASP Complex remain today. The natural communities that remain suggest the diversity of habitats that once covered the NASP Complex. These remaining natural communities provide good quality habitat for both plant and animal life and should be protected and enhanced.

Often, nuisance wildlife species such as rodents and some birds become overpopulated or congregate in areas creating a threat to human health and/or the military mission. In such cases, these wildlife species must be controlled to prevent problems. To protect, maintain, and restore native communities for plant and animal life, while preventing nuisance wildlife from negatively impacting quality of life and the military mission, the NASP Complex needs to implement programs to address the following objectives:

Objective 3.1: To maintain ecological integrity of wetland and upland communities for the protection of native plant and animal species, including numerous federally and state listed species;

Objective 3.2: To preserve and protect threatened and endangered species and species of special concern to ensure no reduction in species numbers or population sizes; and

Objective 3.3: To control nuisance wildlife and wildlife diseases that may adversely affect human health or welfare, the health of the ecosystem, and/or the military mission.

Goal 4: Provide facilities and develop policies that allow for recreational and educational uses of natural resources, and result in positive effects to these natural resources while improving the quality of life.

Issue: The SAIA requires that military Installations evaluate the potential for providing outdoor recreational resources to the general public. Current access to the NASP Complex's existing recreational resources is limited to Installation Department of Defense (DoD) civilians, uniformed military personnel and dependents, and retired military personnel. However, the general public is allowed access to several natural and cultural resources at the NASP Complex. The Commanding Officer (CO) authorizes access for educational and outdoor natural resources recreational activities consistent with the military mission and security levels. The following objective was developed to provide for recreational opportunities:

Objective 4.1: To develop additional recreational facilities and trails and/or interpretive centers to support present and future natural resources-based outdoor recreation participants at the NASP Complex.

Goal 5: Protect and conserve the ecological value and diversity of natural resources through fostering knowledge of, and participation in, adaptive ecosystem management.

Issue: Existing Installation programs and plans for maintaining and managing natural resources within the NASP Complex do not currently consider the interrelationships among resources on the Installation, as well as those regionally. Instead, existing programs and plans have typically focused on the management of individual resources in accordance with federal or state laws. To participate in adaptive ecosystem management, the NASP Complex needs to implement programs to meet the following objectives:

Objective 5.1: To provide adequate staffing, equipment, technology, and training to the Natural Resources Department to ensure proper implementation of this INRMP;

Objective 5.2: To incorporate the concept of ecosystem management into all planning and management processes;

Objective 5.3: To implement training, education and stewardship initiatives for ecosystem management; and

Objective 5.4: To establish a planning team to review and update the INRMP in accordance with OPNAVINST 5090.1B 22-4.1[b].

ES.4 Functional Areas and Management Focuses

To achieve Installation-wide goals and objectives the Installation has been divided into functional areas. Functional areas are established in the plan to acknowledge the use of the area for its military purpose and for considering the opportunities to achieve natural resources management goals and objectives. Within each functional area, natural resources management focuses are identified. The focus of natural resources management within a functional area provides geographic emphasis for the primary management practices necessary to achieve the long-term goals and objectives of the INRMP. The management focus for an area may include: land management, forestry, fish and wildlife, and outdoor recreation.

The INRMP divides the NASP Complex into 12 functional areas: four protected areas, five operational protected areas, and three mixed-use management areas. Although many functional areas have a forestry focus, there are no areas at the NASP Complex designated as a Forest Management functional area.

- *Protected areas (P)* include land protected due to the unique natural, cultural or aesthetic value.
- *Operational Protected areas (OP)* include areas vital to the continuance of the military mission that are intensively utilized.

- *Mixed-use management areas (MU)* include areas where non-timber values such as wildlife habitat, water quality (wetland, stormwater and floodplains protection), recreational potential or urban management is the basis for management decisions.

The NASP Complex is composed of eight properties. Based on geography, land use, and natural resources, the NASP Complex is divided into 12 functional areas: Protected Area 1 (P-1), Protected Area 2 (P-2), Operational Protected Area 1 (OP-1), Operational Protected Area 2 (OP-2), Mixed-Use Management Area 1 (MU-1), and Mixed-Use Management Area 2 (MU-2) at NASP (see Figure 6-1); Mixed-Use Management Area 3 (MU-3), Operational Protected Area 3 (OP-3), and Protected Area 3 (P-3) at Navy Outlying Landing Field (NOLF) Bronson (see Figure 6-2); Operational Protected Area 4 (OP-4) at Corry Station (see Figure 6-3); and Operational Protected Area 5 (OP-5) and Protected Area 4 (P-4) at Saufley Field (see Figure 6-4).

P-1 is located in the southwest portion of NASP along the shoreline of Big Lagoon. P-1 is bounded on the north primarily by Radford Road and on the south by Big Lagoon. The area within P-1 is designated as Protected due to the presence of unique natural communities exhibiting high aesthetic and recreational value. This area is characterized by beach dune, scrubby flatwoods, scrub, estuarine tidal marsh communities, and submerged aquatic vegetation along Big Lagoon, and is mostly within the 100-year floodplain. The Trout Point Nature Trail, which provides excellent wildlife viewing and environmental education on various habitats, is located in P-1. Trout Point offers easy beach access and is designated for public use for hiking and nature study. Due to the presence of unique natural communities, relatively undisturbed shorelines, and Lake Frederic and Sherman Cove, the management focus objectives for P-1 are outdoor recreation and fish and wildlife.

P-2 is located along the south central edge of NASP, along the Pensacola Bay shoreline, directly east of P-1. The area within P-2 is designated as Protected due to the presence of unique cultural resources, high-value recreation areas, and beach-dune natural communities. Historical sites include Fort Barrancas and the Advanced Redoubt, managed by the National Park Service (NPS) as part of the Gulf Islands National Seashore (GINS), and the Pensacola Lighthouse managed by the United States Coast Guard (USCG). P-2 is used primarily for outdoor recreation, but contains scattered buildings and facilities such as the Lighthouse Point Restaurant, Navy Lodge, cabins, cabanas, and softball fields. The Oak Grove Campground, which offers both RV and tent camping, is located in the western portion of P-2, adjacent to Pensacola Bay. Because of the high recreational potential and existing facilities, the presence of beach dune natural communities, shoreline habitats, and historically significant sites, the management focus objectives of P-2 are outdoor recreation and fish and wildlife.

OP-1 is located on the western portion of NASP. It consists primarily of Forrest Sherman Field and surrounding lands that are primarily composed of managed pine stands. The area within OP-1 is designated as Operational Protected due to the presence of facilities and operations deemed vital to the military mission. Due to air operations, the airfield and surrounding lands are considered severely constrained in terms of development potential. An Air Installation Compatibility Use Zone (AICUZ) does exist for the field. The management focus objectives of OP-1 are land management and forestry due to the military mission requirements of the land.

OP-2 is located on the eastern portion of the NASP peninsula. The area is bordered by Pensacola Bay to the south and east, and Bayou Grande to the north. OP-2 consists primarily of operational and urban areas, and includes administration buildings, community facilities, public works and utilities (including the wastewater treatment plant), medical facilities, operations facilities, maintenance and supply facilities, training facilities, family housing, military quarters, and restaurants. In addition, OP-2 contains significant historical sites such as Barrancas National Cemetery and Fort San Carlos de Austria. The management focus of OP-2 is land management due to military mission requirements and the high concentration of human activities.

MU-1 is located along the north central portion of NASP adjacent to Bayou Grande. This area consists primarily of pine and mixed forests. The area within MU-1 is designated as Mixed-Use Management due to its potential to yield significant natural resources-based outdoor recreational benefits, and wildlife potential from the pine and mixed forests present. The eastern portion of MU-1 is the location of a former sanitary landfill. This area was designated as a site requiring further environmental investigation following a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) assessment in 1988. The site has been managed under the Installation Restoration Program (IRP; Site 1), and is currently undergoing remedial action. The northern portion of MU-1, adjacent to Bayou Grande, is the site of the Bayou Grande Nature Trail (approximately 1 mile). The trail begins at the NAS family picnic area, includes 31 interpretive stops, a gazebo, a 115-foot cable bridge, and an observation deck over a sawgrass inlet. Primitive camping sites are also maintained along the northern portion of MU-1. The management focus of MU-1 is forestry and outdoor recreation.

MU-2 is located adjacent to and east of MU-1. The area within MU-2 is designated as Mixed-Use Management due to its potential to yield significant natural resources-based outdoor recreational benefits. The A. C. Read Golf Course comprises most of MU-2. Presently, grounds within the golf course are intensively managed, even in out-of-play areas. The management focus objective of MU-2 is land management.

The boundaries of MU-3 are consistent with the boundaries of Blue Angel Recreation Park (BARP). This area is located on the western portion of NOLF Bronson, adjacent to Perdido Bay. The area within MU-3 is designated as Mixed-Use Management due to its potential to yield significant natural resources-based benefits through effective management practices. BARP contains recreational boating facilities, RV and primitive camping facilities, and a mountain bike trail. Due to the outstanding recreational opportunities associated with the existing campgrounds, trails, and access to Perdido Bay, the management objective of MU-3 is outdoor recreation.

OP-3 includes the former operational facilities and airfield at NOLF Bronson. The area within OP-3 is designated as Operational Protected due to the presence of open areas and runways, and the high potential for future operational uses. Although much of this management area is covered by asphalt (approximately 200 acres of abandoned airstrips and taxiways), presently it is not used for flight operations. It does support military reserves and civic groups through licenses and use agreements, and may be used for military training operations in the future. Slash and longleaf pine stands are present along the northern portions of OP-3, north of the airfield. The management focus objectives of OP-3 are land management and forestry due to existing airfield and commercial forest stands.

P-3 is located in the southeastern portion of NOLF Bronson, along its eastern perimeter. The area is directly north of the Perdido Pitcher Plant Prairie. The area within P-3 is designated as Protected due to the unique natural resources present. This management area consists of various forest cover types (e.g. longleaf pine, slash pine, and titi swamp), a relatively large beaver pond (approximately 55 acres), and wet prairie natural communities. Several protected species have been documented in this area including gopher tortoise, snowy egret, little blue heron, white ibis, and numerous wetland plants. In addition, a great blue heron rookery has been documented near the beaver pond (Florida Natural Areas Inventory [FNAI] 1997a). The focus of P-3 is fish and wildlife throughout, with a forestry focus in the upland pine stands.

OP-4 is within Naval Technical Training Center (NTTC) Corry, the Navy Exchange Mall Corry, Navy Housing Corry, and the U.S. Navy Hospital Corry (see Figure 6-3). The Navy Hospital occupies the southwestern corner of OP-4; NTTC Corry the northern portion; Navy Housing the southeastern portion, and the Navy Exchange Mall the south central portion of OP-4, adjacent to Navy Housing. These facilities are collectively referred to as Corry Station in this document. The area within OP-4 is designated as Operational Protected due to the presence of buildings and other facilities vital to the military mission. The management focus of OP-4 is land management due to the extent of natural resources present, military mission requirements for the land, and the high concentration of human activities.

OP-5 is located on the south and central portions of Saufley Field and consists primarily of the airfield and support facilities of the Naval Education and Training Professional Development and Technology Center (NETPDTC). Forest stands occur along western edge of OP-5. The area within OP-5 is designated as Operational Protected because it is vital to the military mission. The management focus of OP-5 is land management due to the military mission requirements of the land.

P-4 is located along Eightmile and Elevenmile creeks, north of OP-5. The area within P-4 is designated as Protected due to the unique natural resources present. This area consists of longleaf and mixed pine forests, in addition to floodplain forests (natural communities) along the creeks. The Saufley Field Nature Trail, which consists of two loops (approximately 1.5 miles total), winds through pine scrub forest and swampy lowlands. The focus of P-4 is fish and wildlife throughout with a forestry focus in the longleaf and mixed pine forests.

ES.5 Projects of the INRMP

Projects are discrete actions for fulfilling a particular strategy (strategies implement objectives). Projects may be required in order for the NASP Complex to fulfill regulatory requirements regarding natural resources management, or in order to enhance existing measures for ensuring compliance. Other projects are not compliance-driven, but may allow for more effective and efficient management of natural resources and/or simply provide for sound natural resources stewardship. Projects require labor resources and funding in addition to the day-to-day requirements of the Installation. The projects to be implemented by the NASP Complex are shown in Table ES-1. Projects were identified by the NASP Complex NRM in consultation with foresters, fish and wildlife biologists, and soil conservationists with the Land Management Department of Southern Division, as well as with federal, state, and county wildlife biologists, foresters, and land managers.

It is the intent of the NASP Complex to implement the projects to the greatest extent possible. The implementation of projects is largely dependent upon availability of funds. Funding for implementation of the INRMP will come from the Installation, Chief of Naval Education and Training (CNET; Major Claimant), or Naval Facilities Engineering Command natural resources fund sources. The natural resources programs and projects described here are divided into mandatory and stewardship categories to reflect implementation priorities. Every effort will be made to acquire O&M(N) Environmental, or other funding to implement DoD mandatory projects in the most timely manner possible. Stewardship projects will be funded through forestry, agricultural outlease, fish and wildlife, Legacy, or other fund sources as funding and personnel resources become available. Table ES-1 summarizes the projects and Table ES-2 shows project costs by fiscal year.

Table ES -1

NAS PENSACOLA NATURAL RESOURCES PROJECTS

Project #	Project Description	INRMP Page Ref.	Scheduled Implementation (FY)	Prime Legal Driver	Navy Assessment Level (*2)	Funding Priority (*1)	Budget Criteria (*3)	Cost Estimate \$	Fund Source	NEPA Requirement	Date Project Completed
1	Wetlands Management	A-8	2004, 2008	5, 9	1	M	12029	\$65,000	ENV, STA	No	
2-a	Invasive and Exotic Species Control Plan	A-10	2004	12	1	M	12015	\$20,000	ENV, STA	No	
-b	Invasive and Exotic Species Control	A-10	2004 - 2010	12	1	M	12035	\$47,000	ENV, STA	No	
3-a	Beach Re-nourishment Permit	A-12	2001, 2005, 2010	4	1	M	12015	\$ 3,000	STA	Yes	
-b	Beach Re-nourishment	A-12	2004-2010	4	1	M	12035	\$74,000	ENV, STA	Yes	
4	Establish Shoreline Vegetation	A-13	2003-2010	10	1	M	12035	\$140,000	ENV, AO, NRR	No	
5	International Coastal Cleanup	A-14	2001-2010		5	S	12035	\$10,000	STA, AO	No	
6	Golf Course Habitat Conservation Plan	A-15	2003-2005		5	S	12036	\$8,000	MWR, NRR, AO	No	
7	Urban Forestry (Tree City USA Re-certification)	A-17	2001-2010		5	S	12035	\$360,000	STA, NRR, FR	No	
8	Forest Administration	A-18	2001-2010	10	N/A	M	12037	Included in Project #22	FOR	No	
9	Forest Product Sales	A-19	2001, 2004, 2006, 2007, 2010	10	N/A	M	12037	\$13,500	FOR, FR	No	
10	Timber Stand Improvement (Herbicide Application and Fertilization)	A-20	2001, 2002, 2007, 2008	10	N/A	M	12037	\$42,000	FOR, FR	No	
11	Construction and Maintenance of Forest Roads	A-21	2003-2005, 2008	10	N/A	M	12037	\$80,000	FOR, FR	No	
12	Fire Management	A-22	2001-2010	10	N/A	M	12037	\$109,000	FOR, FR	No	
13-a	Biological Monitoring: Complex-Wide Update of Inventory	A-24	2004 and 2008	10	1	M	12025	\$70,000	ENV, STA	No	
-b	Annual Monitoring	A-24	2003-2010	1	1	M	12025	\$40,000	ENV, STA	No	
14	Neotropical Migratory Bird Survey	A-25	2004	10	1	M	12025	\$35,000	ENV, STA	No	
15	Species Protection and Habitat Development	A-26	2001-2010 ¹	10	1	M	12036	\$99,230	ENV, STA, LY	No	
16	Nuisance Wildlife Management	A-28	2001-2010		2	S	12036	\$92,000	STA	No	

Key at end of table.

Table ES -1

NAS PENSACOLA NATURAL RESOURCES PROJECTS

Project #	Project Description	INRMP Page Ref.	Scheduled Implementation (FY)	Prime Legal Driver	Navy Assessment Level (*2)	Funding Priority (*1)	Budget Criteria (*3)	Cost Estimate \$	Fund Source	NEPA Requirement	Date Project Completed
17	BASH Plan Management and Revision	A-30	2003-2010	2, 4, 7	1	M	12039	\$20,000	ENV, STA	No	
18	Interpretive Nature Trails (Natural Resources Education)	A-31	2003, 2005, 2007, 2008, 2010		2	S	12018	\$160,000	STA, AO	No	
19	Primitive Camping	A-33	2003, 2006, 2008		5	S	12018	\$11,000	STA, AO, NRR, MWR	No	
20	Orienteering	A-34	2003, 2004, 2007, 2008		5	S	12018	\$4,000	STA, AO	No	
21	Recreational Fishing	A-35	2003-2010	14	1	M	12036/12038	\$38,000	ENV, STA, FOR, MWR	No	
22	Natural Resources Staffing	A-37	2001-2010	2	1	M	00000	\$1,494,000	ENV, STA, FOR, AO	No	
23	Natural Resources Training	A-38	2001-2010	2	1	M	12940	\$85,000	ENV, STA, FOR, AO	No	
24	Natural Resources SCA Support	A-40	2001-2010		5	S	00000	\$82,000	STA, AO, SCAC	No	
25	Natural Resources Vehicles and Equipment	A-41	2001-2010	10	1	M	12999	\$178,000	STA, FOR, NRR	No	
26	Natural Resources Technology	A-42	2003-2010	2	1	M	12005	\$25,000	ENV, STA, FOR, AO, LY	No	
27	Natural Resources Public Relations	A-44	2003-2010		5	S	12999	\$18,000	STA, FOR, AO, NRR, LY	No	
28	INRMP Update and Revision	A-45	2005	2	1	M	12026	\$25,000	ENV	Yes	

Key at end of table.

Key:

- (*1) **M:** Mandatory Project **S:** Stewardship Project
- (*2) From EPR "Guidebook" (Cookbook); "N/A" Projects are funded with "Forestry Funds"
- (*3) "Guidebook Number" is from Chapter 12 of EPR Guidebook (Cookbook)

SOURCE OF FUNDS

STA	- Station O&MN	LY	- Legacy
FOR	- Forestry	ENV	- Environmental O&MN
AO	- Agricultural Outleasing	MWR	- Moral, Welfare & Recreation
NRR	- Natural Resources Reserve	UF	- User Fees
FR	- Forestry Reserve	SCAS	- SCA Coordinator

PRIMARY LEGAL DRIVERS

(1) 7 USC 2814	Management of undesirable plants on Federal lands (Federal Noxious Weed Act)
(2) 16 USC 670a-f	Sikes Act Improvement Act of 1997
(3) 16 USC 1456	Coastal Zone Management Act
(4) 16 USC 1531 & 1536	Endangered Species Act
(5) 33 USC 1251	Clean Water Act
(6) 16 USC1955	Magnuson Stevenson Fisheries Management Act
(7) 16 USC 703	Migratory Bird Treaty Act
(8) 16 USC 2912	Fish and Wildlife Conservation Act
(9) 16 USC 4808	North American Wetland conservation Act
(10) 32 CFR 190	Natural Resources Management Program
(11) EO 13148	Greening the government through environmental management
(12) EO 13112	Invasive Species
(13) EO 13089	Coral Reef Protection
(14) EO 12962	Recreational Fisheries
(15) EO 11990	Protection of Wetlands
(16) DOD INST 4715.3	Environmental Conservation Program

Table ES -2

NASP Complex INRMP Projects Cost By FY

Project #	Funding Priority	Cost by Fiscal Year										
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
1	M	-	-	-	\$20,000	-	-	-	\$45,000	-	-	\$65,000
2a	M	-	-	-	\$20,000	-	-	-	-	-	-	\$20,000
2b	M	-	-	-	\$15,000	\$10,000	\$10,000	\$3,000	\$3,000	\$3,000	\$3,000	\$47,000
3a	M	\$1,000	-	-	-	\$1,000	-	-	-	-	\$1,000	\$3,000
3b	M	-	-	-	\$6,000	\$14,000	\$14,000	\$10,000	\$10,000	\$10,000	\$10,000	\$74,000
4	M	-	-	\$25,000	\$15,000	\$15,000	\$25,000	\$15,000	\$15,000	\$15,000	\$15,000	\$140,000
5	S	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$10,000
6	S	-	-	\$2,000	\$3,000	\$3,000	-	-	-	-	-	\$8,000
7	S	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$360,000
8 (see Proj. 22)	M	-	-	-	-	-	-	-	-	-	-	\$0
9	M	\$2,000	-	-	\$2,500	-	\$3,000	\$3,000	-	-	\$3,000	\$13,500
10	M	\$18,000	\$14,000	-	-	-	-	\$4,000	\$6,000	-	-	\$42,000
11	M	-	-	\$15,000	\$25,000	\$15,000	-	-	\$25,000	-	-	\$80,000
12	M	\$24,000	\$12,000	\$7,000	\$7,000	\$5,000	\$5,000	\$7,000	\$7,000	\$28,000	\$7,000	\$109,000
13a	M	-	-	-	\$30,000	-	-	-	\$40,000	-	-	\$70,000
13b	M	-	-	5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$40,000
14	M	-	-	-	\$35,000	-	-	-	-	-	-	\$35,000
15	M	\$4,500	\$4,630	\$10,500	\$10,710	\$10,920	\$11,140	\$11,360	\$11,590	\$11,820	\$12,060	\$99,230
16	S	\$8,000	\$8,000	\$8,000	\$8,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$92,000
17	M	-	-	\$3,000	\$2,000	\$2,000	\$2,000	\$2,000	\$3,000	\$3,000	\$3,000	\$20,000
18	S	-	-	\$40,000	-	\$55,000	-	\$50,000	\$10,000	-	\$5,000	\$160,000
19	S	-	-	\$2,000	-	-	\$3,000	-	\$3,000	-	\$3,000	\$11,000
20	S	-	-	\$1,000	\$1,000	-	-	\$1,000	\$1,000	-	-	\$4,000
21	M	-	-	\$1,000	\$1,000	\$1,000	\$21,000	\$11,000	\$1,000	\$1,000	\$1,000	\$38,000
22	M	\$119,000	\$123,000	\$139,000	\$144,000	\$148,000	\$154,000	\$160,000	\$164,000	\$169,000	\$174,000	\$1,494,000
23	M	\$6,000	\$6,000	\$8,000	\$8,000	\$9,000	\$9,000	\$9,000	\$10,000	\$10,000	\$10,000	\$85,000
24	S	\$7,000	\$7,000	\$7,000	\$8,000	\$8,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$82,000
25	M	\$9,000	\$9,000	\$40,000	\$10,000	\$51,000	\$11,000	\$12,000	\$12,000	\$12,000	\$12,000	\$178,000
26	M	-	-	\$6,000	\$4,000	\$1,000	\$1,000	\$1,000	\$7,000	\$2,500	\$2,500	\$25,000
27	S	-	-	\$1,000	\$3,000	\$1,000	\$5,000	\$2,000	\$2,000	\$2,000	\$2,000	\$18,000
28	M	-	-	-	-	\$25,000	-	-	-	-	-	\$25,000
Total "M"		\$188,500	\$173,630	\$323,500	\$315,210	\$303,920	\$276,140	\$258,360	\$364,590	\$275,320	\$263,560	\$2,752,730
Total "S"		\$52,000	\$52,000	\$98,000	\$60,000	\$114,000	\$64,000	\$109,000	\$72,000	\$58,000	\$66,000	\$745,000
TOTAL ALL		\$235,500	\$220,630	\$357,500	\$420,210	\$426,920	\$335,140	\$362,360	\$436,590	\$328,320	\$324,560	\$3,447,730

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List of Acronyms

ABD	Applied Biology Department
AICUZ	Air Installation Compatible Use Zone
ATV	All-Terrain Vehicle
BAHWG	Bird/Animal Hazard Working Group
BARP	Blue Angel Recreation Park
BASH	Bird/Animal Strike Hazard
BGS	Below Ground Surface
BMP	Best Management Practice
CA	Conservation Associate
CAA	Clean Air Act
CARL	Conservation and Recreation Land
CCCL	Coastal Construction Control Line
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CHRIMP	Consolidated Hazardous Material Reutilization Inventory Management Program
CMC	Center for Marine Conservation
CNET	Chief of Naval Education and Training
CNO	Chief of Naval Operations
CO	Commanding Officer
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DANTES	Defense Activity for Non-Traditional Educational Support
DCA	Department of Community Affairs
DoD	Department of Defense
DoDINST	Department of Defense Instruction
DoN	Department of the Navy
DOT	Department of Transportation
EA	Environmental Assessment
EFD	Engineering Field Division
EFH	Essential Fish Habitat
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act of 1973
° F	Degrees Fahrenheit
FAA	Federal Aviation Administration
FCMP	Florida Coastal Management Program
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDNR	Florida Department of Natural Resources
FEMA	Federal Emergency Management Agency
FFWCC	Florida Fish and Wildlife Conservation Commission

List of Acronyms (continued)

FGFWFC	Florida Game and Fresh Water Fish Commission
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FIRM	Flood Insurance Rate Map
FMIS	Forest Management Information System
FNAI	Florida Natural Areas Inventory
FPC	Federal Prison Camp
GINS	Gulf Islands National Seashore
GIS	Geographic Information System
HCP	Habitat Conservation Plan
HM	Hazardous Materials
HS	Hazardous Substance
HW	Hazardous Waste
HWMP	Hazardous Waste Management Plan
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IRP	Installation Restoration Program
LGP	Low Ground Pressure
LMD	Land Management Department
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
MSL	Mean Sea Level
MWR	Morale, Welfare, and Recreation Division
NAAQS	National Ambient Air Quality Standards
NAAS	Naval Auxiliary Air Station
NAS	Naval Air Station
NASP	Naval Air Station Pensacola
NAVFACENGCOM	Naval Facilities Engineering Command
NAVFACINST	Naval Facilities Instruction
NAVSUP	Naval Supply Systems Command
NAWCTSD	Naval Air Warfare Center Training Support Division
NCTC	Naval Communications Training Center
NEPA	National Environmental Policy Act
NETPDC	Naval Education and Training Professional Development Center
NETPDTC	Naval Education and Training Professional Development and Technology Center
NETPMSA	Naval Education and Training Program Management Support Activity
NFA	No Further Action
NJROTC	Navy Junior Reserve Officer Training Candidate
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRM	Natural Resource Manager
NROTC	Navy Reserve Officer Training Candidate
NTTC	Naval Technical Training Center
NFWFMD	North Florida Water Management District
OFW	Outstanding Florida Water

List of Acronyms (continued)

NOLF	Navy Outlying Landing Field
O & M(N)	Navy Operations and Maintenance
OPNAVINST	Chief of Naval Operations Instruction
P2	Pollution Prevention
P5	Perdido Pitcher Plant Prairie Preserve
PCE	Polychlorinated Ethylene
PMP	Pest Management Plan
RA	Resource Assistant
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facilities Investigation
ROICC	Resident Officer in Charge of Construction and Contracts
RSIP	Regional Shore Infrastructure Plan
SAIA	Sikes Act Improvement Act of 1997
SARA	Superfund Amendments and Reauthorization Act
SAV	Submerged Aquatic Vegetation
SCA	Student Conservation Association
SCORP	State Comprehensive Outdoor Recreation Plan
SCS	Soil Conservation Service
SJRWMD	St. Johns River Water Management District
SMP	Smoke Management Plan
SOUTHDIV	Southern Division of Naval Facilities Engineering Command
SPCC	Spill Prevention Control and Countermeasures
SSURGO	Soil Survey Geographic
SWPPP	Stormwater Pollution Prevention Plan
TNC	The Nature Conservancy
TSI	Timber Stand Improvement
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
WMP	Watershed Management Plan
WRAP	Wetland Rapid Assessment Procedure

1.1 Purpose and Organization

The purpose of this document is to meet statutory requirements under the Sikes Act Improvement Act (SAIA), Public Law 105-85, Div. B. Title XXIX, Nov. 18, 1997, 111 Stat 2017-2019, 2020-2022. In November 1997, the Sikes Act, 16 U.S.C. § 670a et seq., was amended to require the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military Installations. To facilitate this program, the amendments require the Secretaries of the military departments to prepare and implement integrated natural resources management plans for each military Installation in the United States unless the absence of significant natural resources on a particular Installation makes preparation of a plan inappropriate. The Act mandates that all military Installations with significant natural resources prepare and implement an Integrated Natural Resources Management Plan (INRMP) by November 17, 2001.

The United States Department of the Navy (DoN) is preparing this INRMP for the Naval Air Station Pensacola Complex, Florida (hereinafter identified as the NASP Complex), to comply with the SAIA and with Department of Defense (DoD) Instruction (DoDINST 4715.3). This INRMP also complies with the Office of the Chief of Naval Operations Instruction (OPNAVINST) 5090.1B, Chapter 22, ASN (I&E) Memorandum of 12 August 1998, OUSD Memorandum of 21 September 1998, Chief of Naval Operations (CNO) ltr Ser N45D/8U589016 of 25 September 1998, and CNO ltr Ser N456F/8U589129 of 30 November 1998.

Other than the mandated requirement, the primary purpose of the INRMP is to provide the NASP Complex with a foundation from which to manage its natural resources. The INRMP will outline the management of the Installation's natural resources for the next 10 years. The INRMP will account for the goals of the natural resources program within those 10 years, while supporting the mission of the Installation. The INRMP will also consider the surrounding natural resources through implementation of an integrated approach to management.

The first three sections of this INRMP establish the existing conditions at the NASP Complex. Section 1 provides a general overview of the purpose and intent of the INRMP and processes for review, implementation, and revision of the plan. Section 2 establishes the importance of the military mission within the DoN, discusses the organization of the NASP Complex, provides a brief overview of the natural resources program, and identifies Installation partnerships and stakeholders with a particular interest in the protection of Installation and regional natural resources. Section 3 discusses the existing physical and biological characteristics of the local and regional environment. Physical characteristics include climate, topography, geology, soils, hydrology, groundwater, and land use. Biological characteristics include wetlands, wildlife, threatened and endangered species, coastal zone issues, and natural vegetative communities.

The remaining sections of the INRMP identify issues pertaining to the long-term management of the Complex ecosystem and land management programs and practices for achieving desired conditions. Section 4 discusses ecosystem management goals, objectives, strategies, initiatives, and/or projects that comprise a logical sequence of actions for achieving the long-range aim of ecosystem management.

Section 5 discusses ecosystem management at the NASP Complex by dividing ecosystem management into four components: land management, forest management, fish and wildlife, and outdoor recreation. These components are further divided into subcomponents; for example, the land management discussion addresses wetlands, invasive and exotic species, soil conservation and erosion control, stormwater/water quality control, landscaping and grounds maintenance, floodplain management, and urban forestry.

For each subcomponent, Section 5 discusses the issues, long-term management of the issues, the relationship of issues to ecosystem management, the relationships among ecosystem management subcomponents, legal requirements, and sources for additional management information. This section also correlates the goals, objectives, strategies, initiatives, and/or projects presented in Section 4 with the subcomponents defined in Section 5 (the issues identified in Section 5 for each subcomponent were used to develop the ecosystem management goals and objectives presented in Section 4).

Section 6 discusses the natural resources management functional areas and their focus (i.e. land management, forest management, fish and wildlife management, and/or outdoor recreation). Management functional areas were developed for no net loss in capability of lands to support the military mission and to achieve the goals, objectives, and strategies discussed in Section 4. The function of an area defines the primary purpose of the land while the focus of the area defines the

primary management objectives of the land. All other long-term management practices will be implemented in support of the primary purpose.

Appendix A describes the projects that will be implemented by the NASP Complex. Projects were identified by the NASP Complex Natural Resources Manager (NRM) in consultation with foresters, fish and wildlife biologists, and soil conservationists with the Land Management Department (LMD) of Southern Division (SOUTHDIR) of Naval Facilities Engineering Command (NAVFACENGCOM), as well as with federal, state, and county wildlife biologists, foresters, and land managers. For each project, Appendix A discusses the purpose, location, description, cost, relevance to the goals and objectives listed in Section 4, baselines, monitoring requirements, and legal requirements. It is the intent of the NASP Complex to implement the projects, as described in Appendix A, to the greatest extent possible. The implementation of projects is largely dependent upon availability of funds. Recognizing the uncertainties in funding and the possibility of changes to the NASP Complex's military mission and its civilian and military staffing, the implementation of projects will proceed as directly and completely as possible.

The NASP Complex Forest Management Plan is provided as Appendix B. Appendix B includes a forest stand information table, the 10-year forest management prescriptions for each forest stand within the NASP Complex, and a 10-year forest management summary. Appendix C provides information pertaining to outdoor recreation at the Complex.

1.2 Ecosystem Management

In November 1997, the Sikes Act, 16 U.S.C. 670 a et seq., was amended to require the implementation of a program to provide for the conservation and rehabilitation of natural resources on military installations. The Navy's approach for management of natural resources is holistic in that it incorporates an awareness of the broad regional setting in which the installation is located. Appropriate and effective management of natural resources on Navy lands will be achieved in accordance with the principles and practices of ecosystem management.

Ecosystem management is defined as "a collaborative process that strives to reconcile the promotion of economic opportunities and livable communities with the conservation of ecological integrity and biodiversity" (The Keystone Center 1996). Ecosystems are important components of environmental systems. Ecosystem components, living and non-living, are linked together by numerous, dynamic flows of matter and energy (Levine 1991). Ecosystems are dynamic and involve repetitive or cyclic phenomena. Ecosystems typically contain a great diversity and number of species, individual organisms, and abiotic components. The living members of ecosystems exhibit a wide array of behaviors, and intra- and interspecies interactions are varied and often subtle.

Recognizing that crucial interdependencies exist within and between ecosystem components is important in establishing successful environmental management policies.

Ecosystem management is the centerpiece of environmental policy in the late 20th and early 21st centuries, and is a unifying approach for the management of military lands. Ecosystem management's broad-based approach to natural resources management involves identifying, protecting, and restoring complete ecosystems — including abiotic structural components and natural processes — while fully incorporating social, economic, and other human concerns into planning (DoD 1996). In many parts of the United States, the government is a major land owner and plays a dominant role in ecosystem management initiatives. Government staff, by virtue of their public service function, often provide the energy and continuity needed to keep an initiative going, since many of the other participants are often volunteers and must take time off from their jobs to participate.

Ecosystem management initiatives include steps that should not be viewed as precise ingredients in a recipe or as always needing to take place in the same sequence. Each step is related to the others and steps often occur in parallel and can be repeated as the process evolves. Steps in ecosystem management include:

- Recognizing and defining the problems or opportunities;
- Delineating boundaries;
- Identifying and involving participants;
- Establishing a common vision;
- Assessing ecological, economical, and social constraints and opportunities;
- Acquiring funding;
- Making decisions and implementing solutions; and
- Monitoring progress, evaluating impacts, and adapting based on new information (The Keystone Center 1996).

1.3 Integrated Natural Resources Management Plan (INRMP)

The INRMP is a management planning document that prescribes the use and conservation of natural resources on lands and water under DoD control. Currently, DoD is one of the largest landholders in the United States, with over 25 million acres. Some of the most environmentally

sensitive properties, including sensitive species and/or sensitive vegetative communities, occur within these lands. In many areas of the United States, DoD land holdings include large tracts of natural areas with relatively high biodiversity within otherwise developed landscapes; therefore, it is important for the DoN to integrate natural resources conservation into Installation management for the benefit of regional biodiversity.

The development and implementation of the INRMP is a dynamic, multidisciplinary planning process that incorporates as its primary goal supporting and sustaining the military mission while managing, protecting, and enhancing the biological integrity of military lands and waters. The military's use of land and water resources must comply with legal mandates and will, to the extent practicable, be integrated with ecosystem-level goals, plans, and use of lands and waters inside and outside the boundaries of military Installations.

As an essential, initial part of the INRMP process, the subject DoD Installation develops a mission statement. The mission statement provides the standard by which to measure the effects and effectiveness of INRMP decisions. The NASP Complex mission statement follows.

Mission Statement of the Naval Air Station Pensacola Complex, Pensacola, Florida

The primary mission of the NASP Complex is to provide support to naval air training, tenants, and other customers through continuous improvement in quality of life, workforce, environment, and public image. The mission of the Navy's natural resources program is to support the Navy mission through responsible stewardship of the Installation's natural resources utilizing integrated natural resources management and principles of ecosystem management to ensure ecosystem viability and biodiversity. The primary goal of the INRMP is to restore, develop, and maintain balanced ecosystems supporting the DoN mission in an appropriate, sustainable, multiple-use environment. This goal is accomplished through a combination of careful planning and implementation of management prescriptions.

1.4 Implementation of the INRMP

Implementation of the INRMP will follow an annual strategy that addresses legal requirements, funding, implementation responsibilities, technical assistance, labor resources, and technological enhancements.

Legal Requirements

Legal requirements are laws, executive orders, regulations, and memoranda regarding the protection and management of natural resources (see Table 1-1). The INRMP will be updated as legal requirements change. Relevant legal requirements for natural resources management are also presented throughout Section 5.

Table 1-1	
LEGAL DRIVERS FOR NATURAL RESOURCES MANAGEMENT	
Name/Description	Citation
Addresses off-road vehicle use	Executive Order 12608
Bald Eagle Protection Act of 1940	16 USC 668
Clean Air Act	42 USC 7401
Clean Water Act	33 USC 1251, 33 USC 1341
Coastal Zone Management Act	16 USC 1456
Coral Reef Protection	Executive Order 13089
Endangered Species Act	16 USC 1531 & 1536
Environmental Conservation Program	DoD Instruction 4715.3
Erosion Protection Act	33 USC 426
Estuary Protection Act of 1968	16 USC 1221
Farm Land Protection Policy	7 CFR 658
Farmland Protection Policy Act of 1981	7 USC 4201
Federal Insecticide, Fungicide, and Rodenticide Act	7 USC 136
Federal Land Policy and Management Act of 1976	43 USC 1701
Federal Noxious Weed Act of 1974	7 USC 2801
Federal Pest Plant Act	7 USC 150
Fish and Wildlife Conservation Act	16 USC 2901
Fish and Wildlife Coordination Act, as amended	16 USC 661-666c
Floodplain Management	Executive Order 11988
Greening the Government through environmental management	Executive Order 13148
Invasive Species	Executive Order 13112
Magnuson-Stevens Fisheries Conservation and Management Act, as amended	Public Law 94-265
Management of undesirable plants of Federal lands	7 USC 2814
Marine Mammal Protection Act of 1972	16 USC 1361
Migratory Bird Treaty Act	16 USC 703
Military Construction and Authorization Act – Leases, Non-excess property	10 USC 2667
Military Reservations and Facilities – Hunting, Fishing, and Trapping	10 USC 2671
Multiple-Use Sustained Yield Act of 1960	16 USC 528
National Environmental Policy Act of 1969	42 USC 4321
Natural Resources Management Program	32 CFR 190
North American Wetland Conservation Act	16 USC 2912
North American Wetland Conservation Act	16 USC 4808
North American Wetlands Conservation Act	16 USC 4401
Outdoor Recreation – Federal/State Program Act	16 USC 460 P-3
Protection and Enhancement of Environmental Quality	Executive Order 11514
Protection of Wetlands	Executive Order 11990
Recreational Fisheries	Executive Order 12962

Table 1-1	
LEGAL DRIVERS FOR NATURAL RESOURCES MANAGEMENT	
Name/Description	Citation
Rivers and Harbors Act of 1899	33 USC 401
Sikes Act Improvement Act of 1997	16 USC 670
Soil and Water Conservation Act of 1977	16 USC 2001
Soil Conservation Act	16 USC 590
Timber Sales on Military Lands	10 USC 2665
Use of Off-Road Vehicles on DoD Lands	Executive Order 11989
Water Resources Planning Act	42 USC 1962
Watershed Protection and Flood Prevention Act	16 USC 1001, 33 USC 701

Funding

Funding for implementation of the INRMP will come from the Installation, Chief of Naval Education and Training (CNET; Major Claimant), or NAVFACENGCOM natural resources fund sources. The natural resources programs and projects described in this INRMP are divided into mandatory and stewardship categories to reflect implementation priorities. Every effort will be made to acquire Navy Operations and Maintenance (O & M[N]) Environmental, or other funding to implement DoD mandatory projects, in the most timely manner possible. Stewardship-type projects will be funded through forestry, agricultural outlease, fish and wildlife, Legacy, Installation funds, or other fund sources as funding and personnel resources become available.

Implementation Responsibilities

The NASP Complex Commanding Officer (CO) is responsible for managing all aspects of the Installations' natural resources. The CO has delegated implementation authority for natural resources management to the NRM. Other Installation personnel, such as Facilities Management, Security, Recreation, Housing, and Safety, have various functions within the overall natural resources program; they coordinate with the Environmental Officer and the NRM on all natural resources issues.

Technical Assistance

Technical assistance from organizations outside the DoN will include:

- The United States Fish and Wildlife Service (USFWS) and the Florida Fish and Wildlife Conservation Commission (FFWCC), under a Cooperative Agreement among the DoN, the United States Department of the Interior, and the State of Florida;
- The Nature Conservancy (TNC), under a Cooperative Agreement between DoD and TNC; and

- Other government agencies, such as the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and United States Forest Service (USFS); Florida Department of Agriculture and Consumer Services (FDACS), Florida Division of Forestry; Florida Department of Environment Protection (FDEP); and Escambia County land management professionals.

Technical assistance from within DoN will be provided by:

- The NASP Complex's Natural Resources and Facilities managers;
- Foresters, fish and wildlife biologists, and soil conservationists from the LMD of SOUTHDIV; and
- The NASP Complex will, subject to funding, hire additional staff to complete the continuous work necessary for successful implementation of the INRMP.

Labor Resources

Options for supplemental labor resources from outside the DoN for implementation of the INRMP include volunteers from local organizations and groups such as:

- Scout troops;
- Elementary, middle, or high school students;
- College students;
- Ecology clubs and conservation programs/groups (e.g. the Student Conservation Association [SCA]);
- Special interest groups (e.g. Audubon Society);
- Business/homeowners associations; and
- Retired/senior citizens.

Options for supplemental labor resources from within the Installation include the Natural Resources staff, Facilities Management Department, and volunteer civilian and military personnel and their dependents.

Technological Enhancements

For technological enhancement, the NASP Complex will continue to use and upgrade Geographic Information System (GIS) equipment and resources. The advancement and integration of GIS into all aspects of planning at the NASP Complex would reduce the expected work load for

INRMP implementation. GIS systems use computer technology, mapping methods, and geography to blend spatial data from various sources; GIS systems will provide spatial data for the Installation. Today, GIS systems are widely used for planning, decision-making, and ecosystem monitoring. GIS offers an effective tool for processing large amounts of ecosystem-level monitoring data, especially when data are related at varying temporal and geographic scales. GIS offers much needed assistance to the Complex in implementing ecosystem management.

1.5 Approval, Function, Use, and Revision Process of the INRMP

1.5.1 Approval of the INRMP

The INRMP is required to be signature-endorsed by the subject Installation's CO, the Installation NRM, the SOUTHDIV NRM, Regional Environmental Coordinator, and CNET. According to the SAIA, the INRMP must also reflect mutual agreement with the USFWS and FFWCC. Signatures of the appropriate agency representatives will indicate mutual agreement concerning conservation, protection, and management of fish and wildlife resources.

1.5.2 Function and Use of the INRMP

The INRMP will outline the management of the Complex's natural resources for the next 10 years. To accomplish this, the INRMP presents long-term management concepts for the NASP Complex that are consistent with both the management of natural resources and fulfillment of the Complex's military mission. The long-term management concepts do not represent any incremental or specific approach to management, but rather provide a philosophy and direction for the NRM and DoN decision-makers to ensure long-term sustainability of natural resources.

Specific management practices and schedules are addressed in existing Installation plans and programs (see Section 2.5), including, but not limited to, pest management, grounds maintenance, hazardous waste (HW), facilities development, and outdoor recreation. These plans and programs adhere to federal and state regulatory requirements and will be used as tools for implementing this plan. These plans are dynamic, updated periodically, and will be inclusive of the goals and objectives identified in this INRMP.

1.5.3 Revision Process

In accordance with OPNAVINST 5090.1B 22-4.1[b], the INRMP will be reviewed on a yearly basis and re-approved every 5 years. The review process will take into account changes in

military mission requirements and legal mandates, and information obtained from monitoring programs and surveys. Revisions will be reviewed for consistency with the military mission, federal and state laws, and the ecosystem management goals and objectives of the INRMP.

The revision process will be conducted under the direction of the NASP Complex CO; revisions will require consultation with and approval by the NASP Complex CO, the NASP Complex NRM, the NRM of the Engineering Field Division (EFD) of SOUTHDIV, CNET, the USFWS, and the FFWCC.

1.6 Necessary Elements of the INRMP Addressed

1.6.1 Essential Fish Habitat (EFH)

The Magnuson-Stevens Fishery Conservation and Management Act of 1996 requires regional Fishery Management Councils and the Secretary of Commerce to describe and identify Essential Fish Habitat (EFH) for species under federal Fishery Management Plans. EFH is defined in the Magnuson-Stevens Act as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The word "fish" in the previous sentence includes finfish, crabs, shrimp, and lobsters.

Estuarine and marine habitats found near the NASP Complex are considered EFHs for certain species of fish. Therefore, in accordance with the consultation requirements of §305(b) of the Magnuson-Stevens Act (16 U.S.C. 1855(b)), the NASP Complex (as a Federal entity) must consult with the Secretary on all actions, or proposed actions, authorized, funded, or undertaken that may adversely affect EFH. Implementation of this INRMP would not adversely affect EFH.

1.6.2 Coral Reefs

In accordance with Executive Order 13089, Coral Reef Protection of 11 June 1998, which requires federal agencies to protect and enhance coral reefs and coral reef systems, the DoN recognizes that coral reefs and related endemic mangrove and sea grass ecosystems are biologically rich and diverse habitats. There are no coral reef systems within the area of influence of this INRMP.

1.6.3 Marine Mammals

Marine mammals are protected under the Marine Mammal Protection Act (MMPA) of 1972, as amended. The MMPA was enacted for the purpose of ensuring that marine mammals are maintained at, or in some cases restored to, healthy population levels. Jurisdiction of marine mammals is shared between the USFWS and the National Marine Fisheries Service (NMFS). The

USFWS has jurisdiction over sea otters, polar bears, manatees, dugongs, and walrus, while NMFS has jurisdiction over all other marine mammals. Several species of marine mammals potentially occur in waters adjacent to the NASP Complex. Implementation of the INRMP will not adversely affect marine mammals.

1.6.4 Clean Water Action Plan

The Clean Water Action Plan, developed in February of 1998 in response to a White House request, is a comprehensive plan to: "...achieve cleaner water by strengthening public health protections; target watershed protection efforts at high priority areas; and provide communities with new resources to control polluted runoff and enhance natural stewardship" (The Clean Water Action Plan; http://www.cleanwater.gov/news/fact_sheet.html). In accordance with the Clean Water Action Plan, the FDEP developed a Unified Watershed Assessment and priority list for Florida (FDEP, no date). FDEP categorized 51 basins in the state as either Category I (Watersheds in Need of Restoration) or Category II (Watersheds Meeting Goals, Including Those Needing Action to Sustain Water Quality). Six Category I watersheds were prioritized for restoration, using federal funding under the Clean Water Action Plan, in 1999-2000. Pensacola Bay and Perdido Bay are considered Category I basins, but neither was one of the six targeted for funding in 1999-2000. FDEP plans to work with the remaining Category I watersheds under their Watershed Management Program (WMP) (FDEP, no date). Under the draft WMP schedule, Pensacola Bay will be addressed in 2003 and Perdido Bay will be addressed in 2004 (FDEP 2000c).

1.6.5 Bird/Animal Aircraft Strike Hazard (BASH) Reduction

The hazard posed by birds and animals to safe flight operations at an airfield is an ever-present problem. The NASP Complex Bird/Animal Aircraft Strike Hazard (BASH) Plan (NASP Instruction 3751.1C) provides guidance for bird/animal strike hazard reduction in areas where flying operations are conducted. The BASH plan serves a three part purpose. First, it establishes a Bird/Animal Hazard Working Group (BAHWG) to monitor and respond to BASH problems. Second, it provides procedures to identify, reduce, and/or eliminate bird/animal aircraft strike hazards as they arise at the Complex. Third, it contains a technical assistance directory for professional guidance and information in resolving problems. The Aviation Safety Officer at the NASP Complex is responsible for implementation, monitoring, and enforcement of the BASH Plan, and is the leading member of the BAHWG. To prevent BASH-related accidents, it is essential to implement, monitor, and enforce the BASH Plan.

1.6.6 Critical Habitat

Section 1532 (5) (A) of the Endangered Species Act (ESA) of 1973 defines critical habitat for threatened or endangered species. There are no areas designated as critical habitat for threatened or endangered species at the NASP Complex.

1.6.7 Public Access

In general, access to natural resources management areas for recreational purposes is limited to active duty and reserve military personnel assigned to the Installation, their dependents and accompanied guests; federal civilian employees, their dependents and accompanied guests; and military retirees.

However, the general public is allowed access to several natural and cultural resources at the NASP Complex. The CO authorizes access for educational and outdoor natural resources recreational activities consistent with the military mission and security levels. Currently, public access is granted for all National Park Service (NPS) Areas; cultural resources areas such as the Presidio Santa Maria de Galvé and the Pensacola Lighthouse; the Sunec-ke Nature Trail, Bayou Grande Nature Trail and Trout Point Nature Trail at NASP; and the Saufley Field Nature Trail at Saufley Field. In addition, the public has limited access to the Morale, Welfare, and Recreation (MWR) Division jogging/fitness trail and to Bayou Grande and Saufley Field primitive camping areas on a reservation basis. Currently, Navy Outlying Landing Field (NOLF) Bronson is open to the public by special request, and scout groups are allowed access to the primitive camping areas at Blue Angel Recreation Park (BARP).

Access should also be considered in terms of accessibility of facilities and programs for the physically challenged. Basically, federal or federally assisted facilities and programs are required by law to be accessible to the physically challenged. The Architectural Barriers Act of 1968 (Public Law 90-480) requires facilities to be accessible to the physically challenged. Section 504 of the Rehabilitation Act of 1973, as amended (Public Law 93-112), prohibits discrimination on the basis of handicap in program participation and in all facets of employment. The Americans with Disabilities Act of 1990 (Public Law 101-336) provides standards for addressing discrimination against individuals with disabilities in employment, transportation, telecommunications, public accommodations, and services operated by private entities. Military Installations, including dependents and civilian employees, are not exempt from these laws.

1.6.8 Agricultural Outleasing

The NASP Complex does not engage in agricultural outleasing. Because of the absence of land suitable and available for agricultural outleasing, the conservation of land for agricultural outleasing is not discussed further in this INRMP.

The NASP Complex, approximately 8,423 acres of land area, is comprised of the following eight components, all controlled by the NASP CO:

- NASP, 5,800 acres;
- NOLF Bronson, 1,098 acres;
- Naval Technical Training Center (NTTC) Corry, 432 acres;
- U.S. Navy Hospital Corry, 43 acres;
- Navy Housing Corry, 88 acres;
- Navy Exchange Mall Corry, 47 acres;
- Naval Education and Training Professional Development and Technology Center (NETPDTC) Saufley, 878 acres; and
- Lexington Terrace Housing, 37 acres.

For the purposes of this INRMP, NTTC Corry, U.S. Navy Hospital Corry, Navy Housing Corry, and Navy Exchange Mall Corry will be collectively referred to as Corry Station.

2.1 Location, History, and Military Mission

2.1.1 Naval Air Station Pensacola (NASP)

NASP is located in the panhandle of Northwest Florida near Pensacola Bay. The Installation is situated on a peninsula, approximately 5 miles west of the City of Pensacola (see Figure 2-1). NASP is bordered to the south by Big Lagoon and Pensacola Bay, to the east by Pensacola Bay, and to the north by Bayou Grande.

Insert Figure 2-1

The Navy's presence was first established at the site of NASP in 1825 when President John Quincy Adams and Secretary of the Navy, Samuel Southard, arranged to build a Navy Yard on the southern tip of Escambia County. Construction of the Pensacola Navy Yard began in 1826 and grew to be one of the best equipped naval stations in the country. The Navy Yard was decommissioned in 1911. However, in 1914, the first U.S. Naval Air Station (NASP) was established on the abandoned Navy Yard site and has become the primary Installation providing aviation training to the DoN. In 1971, NASP was selected as the headquarters site CNET, a new command which combined the direction and control of all Navy education and training. The Naval Air Basic Training Command was absorbed by the Naval Air Training Command, which moved to Corpus Christi, Texas; NASP provides support for the operation of the Chief of Naval Air Training. In 1999, approximately 15,000 aviation personnel in technical phases of naval operations were trained at NASP. Known as the "Cradle of Naval Aviation," the air station serves as the launching point for the flight training of every Naval Aviator, Naval Flight Officer, and enlisted air crewman. In addition, it is the DoN's premier location for enlisted aviation technical training.

The NASP Complex supports over 50 DoD related tenant commands and customers including CNET, Training Air Wing Six, Naval Aviation Schools Command, Naval Air Technical Training Center, Naval Operational Medicine Institute, Navy Public Works Center, and Naval Air Maintenance Training Group. NASP also supports numerous non-defense related tenants on the Installation, including the NPS, Barrancas National Cemetery (administered by Veterans Affairs), Federal Aviation Administration (FAA), and the National Museum of Naval Aviation. A combined workforce of approximately 14,720 military and civilian personnel make up the population of the station (NASP 2000). The Regional Command for host support services, such as bachelor officers' quarters, MWR, family services center, security, commissary, and exchanges, is also located at NASP.

2.1.2 Navy Outlying Landing Field Bronson (NOLF Bronson)

NOLF Bronson (which includes BARP) is located on the east side of Perdido Bay, approximately 12 miles northwest of NASP, 5 miles west of Pensacola, and 1 mile from the Alabama border (see Figure 2-1). It is located along the western edge of Escambia County, extending approximately 1 mile along the eastern shoreline of Perdido Bay. Tarkiln Bayou State Preserve and Pitcher Plant Prairie, a State of Florida Preservation 2000 purchase, is located directly south of NOLF Bronson.

Land area at NOLF Bronson includes 1,098 acres consisting of forest, grass, wetlands, and approximately 200 acres of abandoned airstrips and taxiways. NOLF Bronson (originally called Tarkiln) was used as an active NOLF for Naval Air Training from 1942 to 1950. The flight training mission at NOLF Bronson ended in 1993. There are no flight training mission buildings or structures remaining at the site. However, the site is used by the Navy for various civic groups through licenses and use agreements. Military reserve activities are also often allowed at NOLF Bronson.

The western portion of NOLF Bronson, adjacent to Perdido Bay, is occupied by BARP. BARP (approximately 400 acres) was established in 1989 to provide outdoor recreation to Navy personnel and military retirees. As discussed in Section 5, BARP provides many outdoor recreational activities including boating, fishing, camping, picnicking, and hiking.

2.1.3 Naval Technical Training Center (NTTC) Corry

NTTC Corry is located in Escambia County, Florida, approximately 2 miles north of NASP and 2 miles west of the City of Pensacola on Highway 98 (see Figure 2-1). Corry Station was originally commissioned in 1934 as an auxiliary airfield to NASP. During World War II, the Installation was redesignated as a Naval Auxiliary Air Station (NAAS); it continued to operate as such until it was decommissioned in 1958 when civilian encroachment precluded continuing air operations. In 1960, Corry Station was reactivated as the Naval Communications Training Center (NCTC), administering basic and advanced training programs in cryptologic communications. The command was redesignated as the NTTC in 1973 when responsibility for electronic warfare training and the Naval School for Photography was added to the command's assigned mission.

The current mission of NTTC Corry is to administer those schools assigned by CNET to train officers and enlisted personnel of the DoN, and personnel of other services and agencies, in Cryptology, Information Operations, Electronic Warfare, Instructor Training, Optics, Instrumentation, and Information Systems. Other tenant commands at Corry Station include the Naval Security Group Activity, Space and Naval Warfare Systems Center Detachment, and U.S. Air Force Detachment 1,325th Fighter Wing. There are approximately 3,370 military and civilian personnel assigned to Corry Station (NASP 2000).

2.1.4 U.S. Navy Hospital Corry

The U.S. Navy Hospital Corry was originally known as the Naval Aerospace and Regional Medical Center when it was established in the southwest portion of Corry Station in March of 1976. This command was redesignated as U.S. Naval Hospital, Pensacola, in March of 1983. The current

facility consists of an 8-story, 60-bed, ambulatory care medical and surgical hospital and provides comprehensive inpatient and outpatient services to more than 72,000 active duty and retired military personnel and dependents residing in Northwest Florida and Alabama.

The assigned mission of the Naval Hospital includes the following primary functions:

- Provide a comprehensive range of emergency, outpatient, and inpatient health care services to active duty Navy and Marine Corps personnel and active duty members of other Federal Uniformed Services;
- Provide, as directed, health care services in support of the operation of the Navy and Marine Corps shore activities and units of the Operating Forces; and
- Participate as an integral element of the Navy and Tri-Service Regional Health Care Systems.

2.1.5 Navy Housing Corry

Navy Housing Corry is situated on 88 acres on the southeastern portion of Corry Station. The housing area consists of 200 duplex units that were built in 1972 and renovated in 1996. The housing is for enlisted personnel and their families. A recreational area is located in the southeastern portion of Navy Housing Corry. The family housing program is managed by the Navy Regional Family Housing Department.

2.1.6 Navy Exchange Mall Corry

The Navy Exchange Mall Corry uses 47 acres on Corry Station. The mall is located to the west and north of Navy Housing Corry. The mall was established in 1979 and provides numerous conveniences such as: retail stores; automotive services; food service facilities; a mini-mart and package store; laundry facilities; video rental; personalized services (i.e. hair dresser, optical shop, barber shop, jewelry store); and others. Use of the mall is restricted to active duty and reserve military personnel assigned to the Installation, their dependents and accompanied guests; federal civilian employees, their dependents and accompanied guests; and military retirees.

2.1.7 Naval Education and Training Professional Development and Technology Center (NETPDTC) Saufley

Saufley Field, which is located approximately 9 miles northwest of NASP on State Highway 173 (see Figure 2-1), has been used by the military since the early 1940's. Presently, it is home to NETPDTC. Saufley Field was acquired by the U.S. Government in 1939 and first opened for flight

purposes in 1940, when it became an Auxiliary Airfield under NASP. In 1943, Saufley Field became a full-fledged NAAS under NASP. Saufley Field continued to train naval aviators in tactics until 1957, when its mission changed to basic training of naval aviators. In 1968, Saufley Field was designated as a Naval Air Station (NAS), and in 1976 it was disestablished and placed under caretaker status. Saufley Field was reactivated in 1980, however, when it became home to the Naval Education and Training Professional Development Center (NETPDC) and an NOLF for NAS Whiting Field. The NETPDTC was formed in 1996 after the disestablishment of NETPDC. Today, the Navy uses two of the original runways and several buildings on the south side of the airfield for training development.

The tenants at Saufley Field include: Naval Reserve Center; United States Coast Guard (USCG) Reserve, 8th Coast Guard District; FAA; Defense Activity for Non-Traditional Educational Support (DANTES); Naval Air Warfare Center Training Support Division (NAWCTSD); and others. A U.S. Department of Justice Federal Prison Camp (FPC) is also located at Saufley Field. There are approximately 890 military and civilian personnel assigned to Saufley Field (NASP 2000).

The NETPDTC Saufley's primary mission is to create and provide innovative education and training products and services that contribute to the development of the professional warrior. NETPDTC Saufley also provides information systems support, administers the Navy Reserve Officer Training Candidate (NROTC) and the Navy Junior Reserve Officer Training Candidate (NJROTC) programs, manages the Navy's Volunteer Education Program, including all CAMPUS offices throughout the world, oversees the Navy's General Library Program, and designs and delivers training programs for the Chaplains' Corps.

2.1.8 Lexington Terrace Housing

Lexington Terrace Housing is located 2 miles from NASP and Corry Station. Housing at Lexington Terrace is for enlisted personnel and their families. The housing area, situated on 37 acres, consists of 198 duplex units which are designated as substandard due to their limited square footage. Lexington Terrace Housing was built in 1941, and was acquired by the DoN in the late 1960's. Currently, there are plans to excess this property in 2000. All current residents will be relocated.

2.2 Organization and Structure

The mission of the NASP Complex is to provide quality support to naval air training, tenants, and other customers through continuous improvement in quality of life, workforce, environment, and public image. The recent regionalization, which took effect October 1, 1999, resulted in

consolidation of some Installation services at NASP, NTTC Corry, NETPDTC Saufley, Navy Public Works Center, and NAS Whiting Field (NAS Whiting Field and related NOLFs are not included in this INRMP; a separate INRMP is being prepared for the NAS Whiting Field Complex). The NASP Complex has a total of approximately 120 tenants at NASP, Corry Station, and Saufley Field. The total number of military and civilian personnel on the Complex is approximately 19,000; approximately 13,400 of these are military and 5,600 are civilian (NASP 2000).

The NASP Complex's functional organization is shown in Figure 2-2. The CO of the NASP Complex directs operations of the regional command and is responsible for regional mission accomplishment. There are seven departments, and within those departments there are 22 divisions (see Figure 2-2). The primary operational functions of the NASP Complex are the responsibility of the Operations Department.

The Natural Resources Program is responsible for natural resources management and is contained in the Environmental Division. The Environmental Division ensures all necessary Environmental Program policies and procedures are in place and adhered to by all activities within the NASP Complex (including NASP, NOLF Bronson, Corry Station, Saufley Field) and NAS Whiting Field. Some of the additional responsibilities of the division include: maintaining compliance with environmental laws and regulations; directing the development and implementation of proactive management practices to ensure compliance with environmental programs (e.g. natural resources); functioning as technical advisor to the CO for all environmental matters; and negotiating compliance agreements with federal, state, and local regulatory agencies. The Environmental Officer serves as the director of the Environmental Division.

All projects occurring within the NASP Complex that potentially impact natural resources (e.g. wetlands, natural areas, urban forests, floodplains, water quality) must be evaluated by the Environmental Department prior to implementation. This will allow projects potentially affecting natural resources to be reviewed by appropriate personnel, and potential constraints (e.g. threatened and endangered species, wetlands, floodplains) to be identified. Also, the potential need for applicable permits (i.e. Wetland Resources Permits [see Section 3.7.1]) will be identified as a result of this review.

Insert Figure 2-2

2.3 Overview of Natural Resources Management

2.3.1 History

The Navy began actively managing its natural resources within the NASP Complex in 1961 when a forestry program was implemented. Through the years, the DoN has pursued an aggressive forest management program and has planted pine trees in many open areas outside flight clearance zones. Prior to 1983, natural resources management services were provided by SOUTHDIV. In 1983, a forester position was established at the Installation to conduct regional natural resources management. In 1998, an additional forester position was established.

During 1987 through 1988, forest stands within the NASP Complex were formally inventoried and mapped; this inventory is the basis for the present Forest Management Information System (FMIS)/GIS database. Forest Management plans for properties within the NASP Complex were last revised in 1996. Since the 1960's, Land Management, Fish and Wildlife, and Outdoor Recreation plans have also been implemented for properties within the NASP Complex and were incorporated into Long Range Natural Resources Management plans for each Installation (i.e. NASP [including NOLF Bronson], NTTC Corry, and Saufley Field). Basic natural resources information was compiled for each Installation in 1986 and has been included in these plans to provide basic information on the history and mission of the Installation, land use, endangered species, wetlands and floodplains, geology, topography, soils, grounds management, forest management, fish and wildlife management, and outdoor recreation.

Land Management Plans for these Installations incorporated on-going erosion control, basic grounds maintenance, and other land management activities. The Land Management Section of the Long Range Natural Resources Management Plan was last updated in 1994 for NASP and Saufley Field and in 1991 for Corry Station.

The Navy signed a Cooperative Agreement with the USFWS and the Florida Game and Fresh Water Fish Commission (FGFWFC) in 1979 which allowed biologists to provide recommendations for future fish and wildlife management. Fish and Wildlife Management plans were last revised in 1988 at NASP (including NOLF Bronson) and in 1997 at Saufley Field. Fish and Wildlife Management plans were never completed for Corry Station.

In 1987, the Navy, the NPS, and Florida Division of Recreation and Parks signed a tri-partite agreement to provide professional and technical information and assistance necessary to coordinate actions pertaining to outdoor recreation. An Outdoor Recreation Management Plan was initially developed in 1988 for NASP. In 1999, the NPS prepared new Outdoor Recreation Management plans

for NASP, NTTC Corry Station (including BARP), and NETPDTC Saufley Field. These plans may be obtained through the Natural Resources Office in the Environmental Division.

2.3.2 Implementation

The NASP Complex is responsible for funding, preparing, and implementing all aspects of the management of its natural resources. The CO, who is responsible for the management of natural resources, has delegated implementation authority to the NASP Complex NRM for natural resources management activities. The NASP Complex NRM manages natural resources at all locations within the NASP Complex and serves as the Regional NRM (which includes oversight of the NASP Complex and the NAS Whiting Field Complex).

Natural resources staff at the NASP Complex consists of two professional foresters, one designated as the NASP Complex NRM, and two SCA Resources Assistants (RAs) (see Section 2.4). The NASP Complex natural resources staff also serves the NAS Whiting Field Complex for on-the-ground natural resources implementation. Additional staff located at NAS Whiting Field include an Environmental Protection Specialist and two SCA Conservation Associates (CAs). Technical support, professional oversight, and administrative and budget management is provided by the Natural Resources Branch, SOUTHDIV. Current equipment available to natural resources personnel at the NASP Complex includes a Suburban, Ford Ranger pick-up truck, Ford transport truck, John Deere 450 low ground pressure (LGP) crawler tractor with disk re-work harrow and fire plow, John Deere 4x6 Gator, and a 4-wheeler all-terrain vehicle (ATV).

Law enforcement on the Complex, including the enforcement of laws and regulations pertaining to natural resources, is the responsibility of the Regional Security Department. Prior to the creation of the regional department in September of 1998, all Installations in the Complex had their own separate Security Departments. The Regional Security Department operates with approximately 100 police officers and 25 administrative support personnel. The department coordinates with the NRM as needed. There is one individual in the Security Department at the NASP Complex that has received DoD Wildlife Law Enforcement Training (1 week), sponsored by the Military Fish and Wildlife Association. In addition, law enforcement officers of the USFWS and the State of Florida have access to the NASP Complex for purposes of enforcing State and Federal fish and wildlife regulations, with the understanding that they will notify the Installation in advance, whenever possible. Employees of the USFWS and the State who require access the Installation for purposes of implementing Cooperative Agreements (see Section 2.4) will be welcomed, but access is subject to the knowledge and consent of the CO.

2.4 Stakeholders and Partnerships

Stakeholders are those organizations or individuals who have a vested interest in natural resources management on the Installation. Over the past several years, the NASP Complex has developed partnerships and cooperative agreements for technical assistance with the stakeholders and other entities interested in participating in activities within the NASP Complex. The NASP Complex believes that it is important to participate with the surrounding community and to open up communication between the Installation and the community. In addition, these efforts complement its overall philosophy of actively partnering with and sharing information and resources with other resources management agencies and organizations, including federal, state, and local governmental agencies, and other non-governmental organizations and groups.

The NASP Complex has a diversity of natural resources within its boundaries. Due to the need for a variety of expertise and assistance in developing and implementing sound management practices, the NASP Complex has developed partnerships and cooperative agreements for technical assistance in managing its natural resources. The development of partnerships with state and federal natural resources agencies, local conservation groups, and academic institutions makes expertise available to natural resources managers, and fosters good community relationships.

Stakeholders are those organizations or individuals who have a vested interest in land management on the Installation. Stakeholders include FFWCC, FDEP, West Florida Regional Planning Council, Friends of the Prairie, Francis M. Weston Audubon Society, Gulf Coast Environmental Defense, Escambia County Citizens Coalition, and Escambia County Department of Environmental Resources Management. In addition, the NASP Complex may seek guidance from other agencies such as NRCS, previously recognized as the Soil Conservation Service (SCS); the USFS; FDACS, Florida Division of Forestry; and the USFWS.

Partnerships, cooperative agreements, and community programs that affect natural resources management within the NASP Complex are discussed below.

- **Cooperative Agreement between the DoN and the USFWS and the FGFWFC, 1979-** In accordance with this Agreement, biologists are able to make visits to review fish and wildlife management practices, which also allows them the opportunity to provide written recommendations for future management.
- **Tri-partite agreement between the DoN, the NPS and the Florida Division of Recreation and Parks -** The purpose of this agreement is to provide the Installation with professional and technical information and assistance necessary to coordinate actions pertaining to the operation, development, management and protection of outdoor recreation resources. Based on this agreement, the NPS and the State of Florida will act

in an advisory capacity on matters pertaining to the management of outdoor recreation resources on lands administered by the Installation.

- **Bureau of Prisons** – The FPC Pensacola located at Saufley Field was established in April 1988 and provides inmate manpower to various components of the NASP Complex. Inmate labor is primarily used for grounds maintenance and for other MWR programs.
- **SCA Program**- SCA is a non-profit organization that provides RAs and CAs to government agencies for support in natural resources. SCA students are acquired by the DoN through a Cooperative Agreement between NAVFACENGCOM and the SCA in New Hampshire. Twenty-four students have been employed by the Pensacola Regional Complex since 1993 and have provided over 16,000 work-hours of natural resources support. The SCA program is a primary support method for conducting regulatory natural resources management in the DoN. As a result of the program, SCA students gain valuable experience in many facets of natural resources management.
- **Tree City USA Program**- This program is administered by the National Arbor Day Foundation in cooperation with the USFS and the National Association of State Foresters. The purpose of this program is to promote effective management of public urban forest resources. NASP has been recognized for the past 5 years by the Tree City USA Program for its effective management.
- **Audubon Christmas Bird Count**- The Florida Audubon Society conducts an annual Christmas bird count through a partnership of cooperative agencies. This survey greatly adds to the database of natural resources information for NASP.
- **Scouts**-Scouting programs are active at the NASP Complex. Areas at NOLF Bronson, Saufley Field, and at NASP are regularly used for primitive camping. The Installation also offers opportunities for scouts to participate in projects that could lead to rank advancements. Projects have included construction of a handicap-accessible picnic site at the family picnic center at NASP, installing bird boxes throughout the golf course, and many others.
- **International Coastal Cleanup**- The International Coastal Cleanup is a global project of the Center for Marine Conservation (CMC) and is supported by an international network of environmental and civic organizations, government agencies, industries, and individuals who remove debris and collect valuable information on the amount and types of debris. NASP has been a part of this program for 14 years, which occurs on the third Saturday of September every year. In 2000, 161 volunteers collected approximately 4,920 pounds of trash from Navy beaches in Pensacola as part of this program.

2.5 Plans, Programs, and Studies

2.5.1 Stormwater Plan

Stormwater management is the responsibility of the Environmental Division, but is not part of the natural resources program at the NASP Complex; however, the results of poor stormwater management can negatively impact natural resources. For example, stormwater that flows directly

from parking lots, runways, and other impervious surfaces may contain pollutants (e.g. oil and grease) that could be harmful to natural ecosystems. Also, stormwater drainage ditches often occur in natural resources management areas and increased stormwater flow has the potential to cause accelerated soil erosion and turbidity in streams. The Clean Water Act (CWA) requires that all point sources (i.e. discrete conveyances such as pipes or man made ditches) discharging pollutants into waters of the United States obtain a National Pollutant Discharge Elimination System (NPDES) permit.

NASP is currently involved in the NPDES permitting process. A Stormwater Pollution Prevention Plan (SWPPP) was partially developed in 1997 in conjunction with permit applications. This SWPPP plan (99% Draft), dated July 25, 1997, covering industrial-related stormwater only, was never fully developed and implemented due to pending permits. Therefore, NASP does not currently operate under a formal SWPPP. Completion of a plan may be required as part of an NPDES permit for which NASP is currently obtaining reauthorization (see below). However, such a plan would not necessarily be Complex-wide.

Currently, NASP operates under two NPDES permits. One permit, reissued in December 1999, covers two outfalls: one for the wastewater treatment plant (001); and one related to fire fighting activities and for chiller water, if needed, for an aircraft carrier (008,009). Both outfalls discharge into Pensacola Bay, the first (i.e. 001) 2,100 feet from shore. The second permit, last issued in 1989, is for stormwater discharges. This is the NPDES permit for which NASP is currently obtaining reauthorization. The new permit would cover six stormwater discharges- four existing and two proposed. Of the four existing outfalls, three discharge to Bayou Grande (002, 003, and 004) and one discharges to Pensacola Bay near Sherman Inlet (007). Of the two newly proposed outfalls, one would discharge to Bayou Grande (P010) and one to Pensacola Bay (P015).

2.5.2 Hazardous Waste (HW)

Natural resources occur in the vicinity of sites that generate HW, and the improper management of HW can lead to natural resources damage. In the event HW adversely impacts natural resources, the NASP Complex NRM evaluates damages and estimates restoration costs. Reports are made to the Regional Environmental Coordinator and appropriate State and Federal authorities. Although the release of hazardous materials (HM) can negatively impact natural resources, the natural resources program is not involved in programs pertaining to HW management. Programs pertaining to HW management are described below.

NASP operates under a Facility Response Plan, a HW Management Program, and a Consolidated Hazardous Material Reutilization Inventory Management Program (CHRIMP). NASP also carries out reporting responsibilities under the Emergency Planning and Community Right-to-

Know Act (EPCRA), Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986, and Executive Order 12865. The Facility Response Plan is currently being updated, and this process should be completed in 2000. The HW Management Program is scheduled to be updated and will probably be complete by the end of 2000. These plans currently include only NASP, but after updating they will also include Corry Station and Saufley Field.

The purpose of the Facility Response Plan is to provide a contingency plan that establishes policy, responsibilities, and procedures for the control and cleanup of oil and hazardous substance (HS) spills within the NASP jurisdiction. The plan is applicable to the land and water within NASP property boundaries and under the command authority of the CO. The plan applies to oil and HS spills into air, water, or land, originating from any NASP department, tenant activity, or other organization or private contractor working on NASP property.

A variety of HS is stored and used in small quantities at NASP as a result of routine operations. Large quantities of purchased petroleum products are stored at various locations at NASP. In order to decrease the potential for oil spills, a Spill Prevention, Control and Countermeasure (SPCC) Plan has been developed for NASP. This plan is being updated and will probably be complete by the end of 2000.

The Hazardous Waste Management Plan (HWMP) for NASP assigns responsibility and offers guidance on industrial waste management procedures to ensure conformance with federal, state, or Navy regulations and policies. The HWMP is intended for use by all personnel at NASP that are involved in the generation and management of waste. All station departments, tenant commands, and contract administrators assign responsibility for compliance coordination of the HWMP to a Point Source Coordinator and Assistant, who receive guidance in use of the plan from the NASP Environmental Officer.

The Navy's CHRIMP provides centralized life-cycle control and management of all HM and HW. It establishes a chain of authorized ownership for each use of HM from procurement, receipt, distribution, use, return, redistribution, to any final disposal. The Naval Supply Systems Command (NAVSUP) is implementing CHRIMP (<http://navair.alc.daps.mil/programs/relatedprograms/chrimp.html>).

Installation Restoration Program (IRP)

Before federal facilities were required to comply with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), the DoD developed a proactive program to address the environmental conditions created by the release of chemicals and petroleum products, or contaminants, from past spills and disposal practices. This program, called the Installation Restoration Program (IRP), is conducted nationwide at military Installations. CERCLA

governs the long-term cleanup of HW sites, and the 1986 SARA requires that DoD and other federal facilities meet the requirements of CERCLA. Petroleum-contaminated sites are not regulated under CERCLA and are not included in the IRP. These sites are regulated by the Florida Petroleum Contamination Site Cleanup Criteria Rule (Chapter 17-770 FAC). In accordance with the IRP, the NASP Complex has conducted studies and investigations at more than 44 sites throughout the Installations.

Thirty-eight sites have been identified as potentially contaminated under the IRP at NASP. Of these, 15 have undergone screening investigations, and at 23 sites Remedial Investigation/Feasibility Studies are being, or have been, conducted. Fifteen sites at NASP are being investigated under the State of Florida Petroleum Program and are not included in the IRP. To date, 21 sites have had remedial investigations, and 10 are presently in the feasibility stage of the CERCLA process. Eleven sites were recommended for no further action (NFA) based on results of the remedial investigations.

Of six sites at NOLF Bronson under the IRP, two (a man-made hill used for firearms target practice and a fire fighting training area) are presently under investigation and four have not been investigated to date.

NTTC Corry has four IRP sites. One is located under Building 1099, which was investigated for groundwater impacts and a treatment system was installed. The other three sites have not been investigated to date.

Five IRP sites are located at Saufley Field. None have been investigated to date. IRP sites at Saufley Field are included in the NAS Whiting Field IRP.

2.5.3 Master Planning and Land Use

In compliance with Naval Facilities Instruction (NAVFACINST) 11010.63D, a Regional Shore Infrastructure Plan (RSIP) is being prepared for the NASP Complex. Master plans for NASP and NTTC Corry were completed in 1989 and for Naval Education and Training Program Management Support Activity (NETPMSA) Saufley Field in 1988. Master plans for NASP and NTTC Corry were updated in 1997. The RSIP will encompass the NASP Complex as a whole and will replace former Master Plans. The RSIP is scheduled to be completed during the Fiscal Year 2001.

Contents of the RSIPs generally include the following sections:

- Vision;
- Description of regional organization;

- Conceptual Functional Plan;
- Conceptual Land Use Plan;
- Community Interface;
- Regional Natural Resources Management Plan; and
- Product modules.

In developing the Conceptual Land Use Plan, natural constraints such as topography, soils, wetlands, vegetation, wildlife, and floodplains are considered and evaluated as potential constraints of future development. In addition, the Land Use Plan will identify natural resources areas that are critical in supporting the military mission (i.e. buffer zones around airfields).

2.5.4 Pest Management

The Public Works Center Pest Control Department at the NASP Complex provides pest control support to NASP, U.S. Naval Hospital, NTTC Corry Station, NETPDTC Saufley, Lexington Terrace Housing, and NOLFs Bronson and Choctaw. The objective of the Pest Control Department is to provide the following pest control services:

- Prolonging the life of the structures through subterranean termite control;
- Maintaining the safety/security of industrial/storage areas, and ammunition storage areas through weed control;
- Providing nuisance pest control to all buildings and housing areas to insure a good working and living environment;
- Controlling weeds and insect pests in all recreational (except the NASP golf course) and lawn areas to maintain aesthetics and provide safe, quality recreation to all personnel;
- Providing control of mosquitoes, flies, and other potential disease vectors and to insure the comfort and well-being of all personnel; and
- Providing vertebrate pest control, including rodent control, to all areas of the base. This includes controlling birds in and around the Operations buildings and warehouses, where they interfere with mission-essential work.

Currently, there are separate Pest Management plans (PMPs) for NASP, NTTC Corry (not finalized), Saufley Field, and Navy Housing Corry. These plans were written in 1990 and updated in 1998, but are becoming outdated. The Pest Management Program at the NASP Complex was reviewed during the period of January 28 through February 3, 2000 in conjunction with an Environmental Quality Assessment. The purpose of the review was to evaluate

compliance with OPNAVINST 6250.4B and the PMPs. The review found that the program currently is in compliance with OPNAVINST 6250.4B and the PMPs; however, recommendations for program improvements were made.

Pest management typically is not a natural resources program; however natural resources management is linked to pest management. Pesticides used in the Pest Management Program may have an impact on natural resources and specifically on wetlands and water quality. The improper use of pesticides can lead to serious damage to both plant and animal life; therefore, type and quantity of pesticides used in the Pest Management Program are limited to ensure minimal negative impacts to natural resources. To avoid damage to natural resources, pesticide applications in the vicinity of natural resources areas (e.g. urban forest areas, wetlands) should be consistent with this INRMP and approved by the NRM.

2.5.5 Grounds Maintenance Program

Grounds maintenance is provided by the Real Property Management Division of the Facilities Department. Maintenance activities include, but are not limited to, grass cutting, edging, and fertilizing; cultivation and mulching of shrubbery, hedgerows and flowerbeds; tree and shrub pruning; raking; and vacuuming and sweeping of paved areas. Federal Prison inmates are utilized for the majority of day-to-day grounds maintenance activities such as grass cutting, landscaping, and sprinkler system installation/maintenance, while a small percentage of work (i.e. tree removal) is conducted by contract. The Real Property Management Officer is responsible for maintenance activities. Technical assistance is provided by the NRM and SOUTHDIV.

2.5.6 Rare Plant, Rare Vertebrate, and Natural Community Survey

In June 1997, the Florida Natural Areas Inventory (FNAI) issued Final Reports on the results of the rare plant, rare vertebrate, and natural community surveys conducted at NASP, NOLF Bronson, NTTC Corry, and NETPDTC Saufley. No surveys were performed at Navy Housing Corry, Navy Exchange Mall Corry, or Lexington Terrace Housing due to the extensive development at these properties. At least 15 rare plant species, 21 rare vertebrate species, and 12 natural communities occur at the NASP Complex. The findings of the surveys are further discussed in Sections 3.2.3 and 3.2.4.

In addition, other studies have been performed at NASP, including a survey of two coastal plants (including *Chrysopsis godfreyi* and *Polygonella macrophylla*) in 1996. This survey was performed by FNAI and a notebook containing the results was prepared pursuant to a grant agreement

between the USFWS and FNAI. The purpose of the survey was to confirm the presence of existing populations and identify new individuals of these species (FNAI 1996).

2.5.7 Wetlands Delineation

Formal delineations of wetland jurisdictional boundaries at the NASP Complex were performed in 1997 (NASP, Saufley Field, and Corry Station) and 1991 (NOLF Bronson). The findings of these wetland surveys and delineations are further discussed in Section 3.7.1.

2.5.8 Outdoor Recreation Management Section, Natural Resources Management Plan

In 1999, NPS prepared Outdoor Recreation Management Sections for the Natural Resources Management plans for NASP (including the eastern portion of NOLF Bronson), NTTCC Corry Station (including the BARP), and NETPDTC, Saufley Field. The 1999 Outdoor Recreation Sections, updating those from 1988, inventoried areas of special interest and dispersed and concentrated outdoor recreation opportunities.

The objectives of each Outdoor Recreation Section were to:

- systematically emphasize optimum outdoor recreation benefits within the constraints of the military mission and within the capability of the natural resources;
- identify natural special interest areas and measures needed to manage, conserve, and protect the areas when feasible; mediate conflicts between competing recreational users; and;
- ensure the sustained multiple use of natural resources for outdoor recreation, fish and wildlife, forestry, and other purposes using an ecosystem management approach.

The Outdoor Recreation plans and maps are available in the Natural Resources Office of the Environmental Division.

3.1 Climate

Pensacola, Florida, is located within the coastal plain of the Gulf Coastal Lowlands. The climate is characterized by mild winters with hot, humid, but breezy summers. Pensacola has a year round average temperature of 67.6 degrees Fahrenheit (° F) and receives an average of 63 inches of rainfall per year (see Table 3-1). The month of January is typically the coldest month of the year, with an average temperature of 50.5° F. The month of July is typically the hottest month of the year with an average temperature of 82.0° F; however, high temperatures also occur in the other summer months.

Table 3-1				
AVERAGE TEMPERATURES AND RAINFALL IN THE PENSACOLA VICINITY (1961-1990)				
Month	Average Temp (°F)	Average Low Temp (°F)	Average High Temp (°F)	Average Rainfall (inches)
January	50.5	41.4	59.7	4.3
February	53.6	44.1	62.8	4.9
March	60.3	51.3	69.3	5.9
April	67.5	58.8	76.5	4.4
May	74.5	65.7	83.1	4.1
June	80.2	71.8	88.7	6.6
July	82.0	74.1	89.8	7.4
August	81.5	73.8	89.1	6.9
September	78.3	70.2	86.4	6.5
October	69.3	59.4	79.0	4.0
November	60.4	50.9	70.0	3.6
December	53.6	44.2	62.8	4.1
Average/Total	67.6	58.6	76.5	62.9

Source: Internet <http://www.worldclimate.com>

Rainfall may be influenced periodically by three types of weather disturbances that result in unpredictable weather patterns. These disturbances are cold fronts, periodic thunderstorms, and hurricanes. Of these, hurricanes are the most destructive. Although hurricane season extends from June through November, the frequency of hurricanes in the Gulf of Mexico is greatest during the months of August, September, and October. Pensacola and the various facilities comprising the NASP Complex are protected from direct hurricane hits by Santa Rosa Island and Perdido Key, but they may be subject to severe flooding and high winds during storms. On the average, a hurricane strikes the Florida Panhandle once every 17 years, and fringe effects are experienced once every 5 years. In 1995, the Pensacola area was directly affected by two major hurricanes within two months of each other, Hurricanes Erin (August 5, 1995) and Opal (October 5, 1995).

3.2 Air Quality

The Clean Air Act (CAA) is the primary federal statute governing the control of air pollution. The CAA designates six criteria pollutants for which National Ambient Air Quality Standards (NAAQS) have been established to protect public health and welfare, and Florida has adopted these standards into its air quality regulations. The criteria pollutants include respirable particulate matter (PM₁₀), carbon monoxide, sulfur dioxide (SO₂), nitrogen dioxide (NO₂), lead, and ozone (O₃).

Air pollutant emissions at the NASP Complex are generated from stationary and mobile sources. Stationary sources include surface coating, fuel storage and handling, and fire-fighting training facilities and miscellaneous small stationary combustion sources. Mobile sources include aircraft, motor vehicles, and ground support equipment. Military aircraft operations are the most significant source of air pollutant emissions at NASP. The NASP Complex is located within the Mobile-Pensacola-Panama City-Southern Mississippi air quality control region. The United States Environmental Protection Agency (EPA) classifies this region as 'in attainment' for the six NAAQS criteria pollutants.

Prescribed burning, which is an essential management tool at the NASP Complex, can contribute to higher concentrations of particulate matter in the air. Smoke is a mixture of carbon particles and water vapor. If air quality in an area was approaching the standard for particulate matter, prescribed burning could potentially cause the region to exceed the daily limit. Florida's Division of Forestry has submitted a Smoke Management Plan (SMP) to the EPA that describes current activities to authorize and control prescribed fires in the state. The SMP includes guidelines for conducting prescribed burns. In addition, the State has created the Florida Fire

Management Information System, a GIS-based system for recording smoke sensitive areas, weather, and prescribed fires (University of Florida Cooperative Extension Service; <http://edis.ifas.ufl.edu/BODY FR058>). The Complex will coordinate with the Division of Forestry to avoid potential adverse impacts from prescribed burns on regional air quality.

3.3 Land Use

Presently, the NASP Complex occupies 8,423 acres of land, which are divided into four general categories based on operational needs and the intensity of required maintenance (Table 3-2).

- **Improved** lands or grounds include residential, commercial, and industrial areas; linear infrastructure facilities, which include transportation, communications, and utilities; and recreational and construction sites. Maintenance of these areas is performed primarily to obtain a pleasing appearance. Frequency of mowings varies based on weather, species of grass, height desired, and other special considerations (i.e. security). Improved grounds occur over approximately 10 percent of the Complex.
- **Semi-improved** grounds include agricultural lands, altered lands, mowed airfield areas, clear zones, road shoulders, and other land use areas that require infrequent maintenance. Maintenance is performed primarily to provide an erosion resistant cover of vegetation, to control weeds and brush, and to reduce fire hazard. Semi-improved lands occur over approximately 17 percent of the Complex.
- **Unimproved** areas include other unpaved areas not included in the improved or semi-improved categories and on which no maintenance is performed. These areas include forestlands, wetlands, waterways and waterbodies, and other non-developed areas and occur over approximately 41 percent of the Complex.
- **Other** lands include areas occupied by buildings, streets, parking areas, sidewalks and other paved areas, and occur over approximately 32 percent of the Complex.

Table 3-2					
CATEGORIES OF INSTALLATION LAND USE BY ACREAGE					
Property/Land Use	I	SI	U	O	Total Acres
NASP	559	911	2,514	1,816	5,800
NOLF Bronson	15	165	480	438	1,098
NTTC Corry	93	88	103	148	432
US Navy Hospital Corry	13	6	7	17	43
Navy Housing Corry	80	8	0	0	88
Navy Exchange Mall Corry	34	0	13	0	47
NETPDTC Saufley	37	260	297	284	878

Table 3-2					
CATEGORIES OF INSTALLATION LAND USE BY ACREAGE					
Property/Land Use	I	SI	U	O	Total Acres
Lexington Terrace Housing	23	0	0	14	37
Total	854	1,438	3,414	2,717	8,423

Key:

- I = Improved Grounds
- U = Unimproved Grounds
- SI = Semi-Improved Grounds
- O = Other

Land use among the Installations that make up the NASP Complex is based on the operational needs and military mission requirements. Land use at the NASP Complex ranges from “high intensity”, well developed areas used for operational functions, to “low intensity” areas that serve as buffers from surrounding non-military lands. Airfields, administrative and training facilities, public works, housing, medical facilities, and other mission operations occur within the high intensity areas at each Installation, while the low intensity land use areas include natural resources such as forests, ponds, wetlands, and other unique habitats.

NASP

With the exception of a few facilities, most of the facilities at NASP are consolidated in the central and southeastern portions of the base. This land use scenario provides relatively easy access to training, recreation, and housing facilities, as well as areas outside of the Installation. Areas on the western portion of the Installation, with the exception of the airfield, are primarily forested (see Section 3.8.3) and in a relatively natural state. Also, much of the coastline along the southwestern portion of the peninsula remains in a relatively natural state.

NOLF Bronson

The eastern portion of NOLF Bronson consists of abandoned airstrips and taxiways, forested areas, and a relatively large beaver pond, and the western portion of the Installation is occupied by BARP. Land area within BARP is primarily forested and in a relatively natural state. BARP has been aesthetically designed to fit into the surrounding habitat. In the early 1960's, many operational buildings were demolished and the area was converted to forest management.

Some operational buildings remain on the property near the entrance to BARP. In addition, a portion of the Perdido Bay shoreline consists of former sea plane ramps and concrete aprons which are presently used by BARP.

Corry Station

Corry Station is shared among the NTTC, Navy Housing, Navy Exchange Mall, and U.S. Navy Hospital. With the exception of the buildings that have been constructed to meet current mission requirements, the present Station still closely resembles the former Corry Station air facility. Corry Station is a mix of land uses and architecture. The main road, Entrance Road, divides the station into two areas. North of Entrance Road is the majority of troop housing, training facilities, and administrative services; to the south is community services and the majority of recreational areas. The majority of the training activities are in buildings that were once used for aviation operations. Planted slash pine forest stands occur throughout Corry Station in former aviation approaches and clear zones; however, no natural communities remain on site.

Saufley Field

The northern portion of the Installation, near Elevenmile and Eightmile creeks, contains floodplain forests and is relatively natural, while the southern three-quarters of the site is highly developed. The majority of land use in the developed portion of Saufley Field consists of runways and other paved surfaces. Buildings and facilities are primarily clustered in the southern portion of the Installation, south of the runways.

3.4 Coastal Resources and Issues

The NASP Complex is located within the State of Florida, Perdido Bay and Pensacola Bay Ecosystem Management Areas. The NASP Complex has approximately 17 miles of shoreline within this system on Bayou Grande, Pensacola Bay, Perdido Bay, and the Intracoastal Waterway at the entrance to the Gulf of Mexico.

The Coastal Zone Management Act (CZMA) requires federal facilities to carry out activities in a manner consistent with the State's coastal zone management program. The Florida Coastal Management Program (FCMP) was approved by the National Oceanic and Atmospheric Administration (NOAA) in 1981. The FCMP compiles 23 Florida Statutes, which are administered by 11 state agencies and four of the five state water management districts. The

FCMP is designed to: ensure the wise use and protection of the State's water, cultural, historical and biological resources; to minimize the State's vulnerability to coastal hazards; to ensure compliance with the State's growth management laws; to protect the State's transportation system; and to protect the State's proprietary interest as the owner of sovereign submerged lands (Florida Department of Community Affairs [DCA] 1999). The INRMP and associated Environmental Assessment (EA) will be reviewed by the State of Florida for Coastal Zone Consistency in compliance with the Federal CZMA.

Coastal zones are also regulated by FDEP under the Florida Coastal Zone Protection Act (1985). Under this program, permits are required for any erosion control devices, excavations, or erection of structures within the coastal construction control line (CCCL). The CCCL occurs only on mainland or barrier island coasts bordering the Gulf of Mexico or the Atlantic Ocean. The actual CCCL is determined separately for each county in Florida. Construction in the Coastal Building Zone is also subject to stricter requirements than structures built farther inland. The Coastal Building Zone extends 1,500 feet landward of the CCCL for mainland coasts and 5,000 feet (or the entire island, whichever is less) for barrier islands. Properties of the NASP Complex are not affected by the CCCL or the Coastal Building Zone because they are not on a barrier island or directly adjacent to the Gulf of Mexico.

3.5 Geology, Topography, and Soils

The NASP Complex is located within the Gulf Coastal Lowlands physiographic region, which has a surface geology characterized by three types of sediments: limestones, organics, and clastics (silt, clay, sand, gravel; Wolfe *et al.* 1988). The Pensacola region is underlain, in descending order, by the Sand and Gravel Aquifer, the Intermediate System (a regional confining unit), and the Floridan Aquifer. These hydrostratigraphic units are discussed in more detail in Section 3.6. The Gulf Coastal Lowlands are characterized by nearly level, poorly drained land extending about 12 miles inland from the coast. Ground elevations in the Pensacola region range from sea level to over 50 feet above mean sea level (MSL).

The topography at NASP is basically flat, ranging from sea level to approximately 40 feet above MSL. The principal soils at NASP are strongly acidic, well to somewhat excessively drained, and sandy textured. The sand or loamy sand surface is 30 to 42 inches thick and underlain by sandy loam to sandy clay substrata. The topography at NOLF Bronson is generally flat, with elevations ranging from sea level to 30 feet above MSL. Soils at NOLF Bronson range from upland sandy soils in the northern portions of the site to hydric soils in the southern portions of the site. The topography at Corry Station is basically flat, with an elevation of 20 to 30 feet

above MSL. Soils are primarily light-colored and well-drained. Sauflley Field is located along a low ridge with an elevation of approximately 85 feet MSL. The ridge drops off to 25 feet MSL on the north side of Eightmile Creek, and 10 feet MSL at the edge of Perdido Bay, to the south. Soils at Sauflley Field range from well-drained sandy and loamy soils, in the vicinity of the field and northeast of the field, to poorly drained sandy and muck soils on the south, southwest, and northwest sides of the field. Current soils data for Escambia County can be obtained electronically through the Soil Survey Geographic (SSURGO) database (<http://www.agnic.org/agdb/ssurgo.html>). NASP soils are mapped on Figure 3-1; NOLF Bronson soils on Figure 3-2; Corry Station soils on Figure 3-3; and soils at Sauflley Field on Figure 3-4.

3.6 Hydrology and Water Quality

3.6.1 Watersheds and Surface Waters

The NASP Complex is located within the Perdido-Escambia River Basin, which drains directly into the Pensacola Bay and Perdido Bay systems (See Figure 2-1). The Escambia River, the largest stream in the area, flows southward from Alabama; it divides Escambia County from Santa Rosa County and empties into Escambia Bay, which becomes Pensacola Bay to the south. The Perdido River flows into Perdido Bay, which empties into various, relatively small, inland bays and bayous, and ultimately the Gulf of Mexico. Perdido Bay is connected to the Pensacola Bay System via the Intracoastal Waterway and Big Lagoon.

3.6.2 Freshwater Streams and Ponds

Due to its relatively level topography and young geologic age, the drainage system of the Coastal Lowlands is weakly developed and has little dissection (USDA 1960). A small number of streams and ponds occur on the NASP Complex; several of these are associated with the golf course and are unnamed. A small, unnamed stream and a beaver pond occur in the southeastern portion of NOLF Bronson. At Corry Station, no streams or ponds exist except for a small unnamed drainage that flows east along the northeastern portion of the station. Elevenmile and Eightmile creeks flow southwest through the northwest portion of the Sauflley Field property. No surface waters occur on the Lexington Terrace Housing property, although a tributary to Jones Swamp is adjacent to the northern boundary of the property.

Insert Figure 3-1

Insert Figure 3-2

Insert Figure 3-3

Insert Figure 3-4

3.6.3 Estuarine and Marine Waters

Estuaries are semi-enclosed coastal bodies of water in which the ocean water is significantly diluted by fresh water from land runoff. Marine waters are tidally influenced with increased salinity (Thurman 1988). NASP has 17 miles of shoreline within the Perdido and Pensacola Bay systems. Marine and estuarine waters in close proximity to the NASP Complex include Pensacola Bay, Bayou Grande, Big Lagoon, Perdido Bay, and a portion of the Intracoastal Waterway (see Figure 2-1). Pensacola Bay, which forms the eastern and southern borders of NASP, has a surface area of approximately 54 square miles with a mean depth of 19.5 feet. Pensacola Bay is a saline bay with a 0.5-mile-wide pass (Caucaus Channel) to the Gulf of Mexico. The Bay is the receiving body of water for Escambia and East bays, and bayous Texar, Chico and Grande (FDEP 1998). Bayou Grande, an estuary that drains into Pensacola Bay, forms the northern border of NASP. Bayou Grande is approximately 1.7 square miles. Big Lagoon is primarily a saline body of water located directly southwest of NASP between the mainland and Perdido Key. Perdido Bay is a semi-enclosed estuary located west of NOLF Bronson. It is connected to the Gulf of Mexico via Perdido Pass, and to Big Lagoon via the Intracoastal Waterway. Perdido Bay has a surface area of approximately 33 square miles. Perdido Bay is partially fed by the Perdido River and Elevenmile and Eightmile creeks. The Pensacola Bay and Perdido Bay watersheds have been impacted by non-point source pollution such as urban stormwater runoff and agricultural runoff, and point source pollution such as effluents from municipal-private domestic wastewater treatment plants and industrial plants. As a result, the Pensacola Bay System does not have the natural biodiversity and productivity of a system with its complexity (<http://www.dep.state.fl.us/nwd/ecosys/waterquality/pensacolabay.htm>). Under the Unified Watershed Assessment and priority list for Florida, Pensacola Bay and Perdido Bay are considered Category I basins (Watersheds in Need of Restoration; see Section 1.6.3).

Pensacola Bay, Perdido Bay, and Bayou Grande are classified as Class II and Class III waters, and are thus designated to support shellfish propagation and recreational and wildlife use. Section 303(d) of the CWA requires that states develop a list of waters not meeting water quality standards or not supporting their designated uses. Pensacola Bay (near the pass), Perdido Bay, and Bayou Grande are each on the 1998 303(d) list for water segments in Florida not meeting their designated uses. Parameters of concern included: coliform and dissolved oxygen for Bayou Grande; metals, biological oxygen demand, nutrients, turbidity, and total suspended solids for Pensacola Bay; and dissolved oxygen and nutrients for Perdido Bay (<http://www.dep.state.fl.us/water/division/tmdl/303d.htm>).

3.6.4 Groundwater

The Pensacola area is underlain by three principal hydrogeologic units: the Sand-and-Gravel Aquifer; the Intermediate System; and the Floridan Aquifer System. The Sand-and-Gravel Aquifer occurs from the ground surface to a depth of approximately 220 to 330 feet below ground surface (BGS), in southern Escambia County. It consists of a complex sequence of unconsolidated to poorly indurated sand, gravel, silt, and clay (Roaza *et al.* 1991). The surficial zone is contiguous with the ground surface, and contains groundwater under water table, or perched water table conditions. Below this aquifer is the Intermediate System, a regionally extensive and vertically persistent hydrogeologic unit of low permeability. The Intermediate System in southern Escambia County is approximately 550 to 1,200 feet thick (Roaza *et al.* 1993). The Floridan Aquifer System, which is composed of limestone formations, underlies the Intermediate System and occurs at depths between approximately 1,100 and 1,500 feet BGS, in southern Escambia County (Scott *et al.* 1991). The Sand-and-Gravel Aquifer and the Floridan Aquifer are used for groundwater by this region, while the Intermediate System acts as a confining unit.

Aquifer systems in the region provide an abundant supply of fresh water. Potable groundwater in Escambia County is generally withdrawn from the Sand and Gravel Aquifer; the Floridan Aquifer is highly productive in other parts of the region, but it is too mineralized to be a potable water source in the Pensacola area. The high annual rainfall for this region provides ample water to recharge the groundwater and surface water systems of this area. Regionally, contamination from polychlorinated ethylene (PCE), a dry cleaning chemical, has been a concern, but granular activated carbon filters on the affected wells have been used to treat the contaminated water. At NASP, shallow groundwater, associated with several IRP sites, has been contaminated. Because of this situation, potable water is supplied to NASP from wells at Corry Station.

3.6.5 Floodplains

Floodplains are defined as low and relatively flat areas adjoining inland and coastal waters and include flood-prone areas of offshore islands. The Federal Emergency Management Agency (FEMA) defines these areas as being subject to a one percent or greater chance of flooding in any given year. According to FEMA 100-year Flood Insurance Rate Maps (FIRM), portions of NASP, NOLF Bronson, and Saufley Field lie within the 100-year floodplain (see figures 3-1, 3-2, and 3-4). In addition, because of NASP's proximity to the Gulf of Mexico and

Pensacola Bay, it is susceptible to coastal flooding during hurricanes and other strong storm events. The 100-year tidal flood elevation at NASP is approximately 9 feet above MSL.

There are no areas on Corry Station, including the U.S Navy Hospital, Navy Housing Corry, or the Navy Exchange Mall Corry, that are within the 25 or 100-year floodplains. Additionally, Lexington Terrace Housing does not fall within 25 or 100-year floodplains.

3.7 Wetlands and Submerged Aquatic Vegetation

3.7.1 Wetlands

Wetlands are generally considered to be transitional zones between the terrestrial and aquatic environment. These areas are characterized by physical, chemical, and biological features indicative of hydrological conditions. Currently, wetlands are regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA of 1972. Wetlands are defined by the USACE as “...*those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*”

Wetland jurisdictional lines at NASP, NOLF Bronson, Saufley Field, and Corry Station were delineated using the USACE 1987 Wetland Delineation Manual. Approximately 1,000 acres of wetlands were identified within the NASP Complex. No wetlands were identified in association with the U.S. Navy Hospital Corry, the Navy Housing Corry, the Navy Exchange Mall Corry, or Lexington Terrace Housing. Wetland quality has not been assessed at the NASP Complex to date, but wetland quality assessments will be implemented in the future.

NASP

In September 1997, a formal delineation of the wetland jurisdictional boundaries on NASP was completed. A total of 99 wetlands were identified, comprising a total of approximately 650 acres (see Figure 3-1). Wetlands included a mixture of palustrine wetlands, such as forested, scrub/shrub, and emergent. Some of the wetlands along the coastline of Pensacola Bay are tidally influenced and considered estuarine emergent and estuarine aquatic bed (seagrasses). Major wetland complexes are located along the southern and western edges of the Installation. Along the northern and eastern edges of the Installation, wetlands tend to be smaller and more isolated from one another (Water and Air Research, Inc. 1998a).

NOLF Bronson

In May of 1991, a wetland inventory and classification was conducted for NOLF Bronson (see Figure 3-2). A total of approximately 250 acres of wetlands was identified, including a mixture of forested, scrub/shrub, and emergent wetlands. Although the Installation is along the shore of Perdido Bay, there were no estuarine wetlands identified. A majority of the wetland acreage is concentrated along the southern and eastern boundaries of NOLF Bronson. The wetlands in the interior of the Installation are isolated and small relative to the periphery wetlands (EPA 1992).

NTTC Corry

In April of 1997, a formal delineation of the jurisdictional wetland boundaries was conducted on NTTC Corry. Two forested wetlands, approximately 0.5 acres, occur on Corry Station (see Figure 3-3; Water and Air Research, Inc. 1998b). Both are isolated wetlands, but one is hydrologically connected to Jones Swamp via a ditch under U.S. Highway 98.

Saufley Field

In August of 1997, a formal delineation of the jurisdictional wetland boundaries on Saufley Field was completed. A total of approximately 100 acres of wetlands occur at Saufley Field (see Figure 3-4). A majority of the wetland acreage is associated with the floodplain areas of Elevenmile and Eightmile creeks in the northern portion of the Installation. Other wetlands on the Installation are associated with an unnamed swamp forest adjacent to Perdido Bay, at the southwest corner of the Installation.

Wetland Permits and Mitigation

The Complex occasionally undertakes activities to maintain or renovate existing facilities, such as marine-related facilities and structures at NASP. These activities may require state and/or federal permits, such as Wetland Resource Permits (FDEP) or CWA Section 404/Rivers and Harbors Act Section 10 permits (USACE). The Florida Wetland Resources Permit Program, administered by the FDEP, regulates dredging, filling, or construction in, on, or over waters and wetlands that are connected, either naturally or artificially, to “named waters” (FDEP 2000b). Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) prohibits the obstruction or alteration of navigable waters of the United States without a permit from the USACE. Section 404 of the CWA (33 U.S.C. 1344) prohibits the discharge of dredged or fill

material into waters of the United States without a permit from the USACE. If it is determined that wetland impacts are unavoidable, mitigation in the form of the creation of wetlands, or the restoration or enhancement of previously degraded ones, may be required under state and/or federal permits. Wetland banking is allowed in Florida and will be considered if needed.

At NASP, maintenance activities periodically occur at Sherman Cove Marina and the sea wall at the USCG Facility (responsibility of the Coast Guard), and periodic dredging of the shipping channel and entrance to Bayou Grande are also conducted. These activities may require state and/or federal permits. Any activity that could potentially affect wetlands or waterbodies should be reviewed by the NRM for permit requirement determination.

3.7.2 Submerged Aquatic Vegetation

Seagrasses, a type of submerged aquatic vegetation (SAV), are marine angiosperms that generally grow in the unconsolidated sediments of shallow, subtidal or intertidal estuarine and marine waters. Seagrass beds provide numerous critical functions to coastal environments, such as serving as a sediment trap and stabilizer of bottom sediments, providing primary productivity to the sea, serving as a food source, and providing substrate and habitat for various species (Wolf *et al.* 1988). Seagrasses occur intermittently in shallow waters along the southern and eastern shores of NASP; in particular the area from Sherman Cove westward to Trout Point, along the shoreline of Big Lagoon, a high-use recreational boating area. This vegetation is susceptible to environmental impacts, such as nutrient loading, due to their high light requirements (Wolfe *et al.* 1988).

3.8 Vegetation and Wildlife

The biological environment of the NASP Complex was considerably different prior to colonization and development. Historically, the area was dominated by natural communities that are, today, found only scattered throughout the Complex. The natural communities at NASP include: estuarine tidal marsh; scrub; mesic flatwoods; scrubby flatwoods; wet flatwoods; beach dune; and baygall. These natural communities exist throughout the Installation, but are primarily located in the southwest and north segments (FNAI 1997a). NOLF Bronson contains wet prairie natural communities in the northeastern and southeastern portions of the site (FNAI 1997a). Four high quality natural communities occur at Sauflay Field; they are blackwater stream, depression marsh, floodplain swamp, and seepage slope areas (FNAI 1997c).

Ecosystems at the NASP Complex have been affected by development to varying degrees. Areas that have been highly developed by the DoN (i.e. Corry Station, eastern portion of NASP

and Forrest Sherman Field, southern portion of Saufley Field) contain little or no natural vegetation or wildlife associated with previous ecosystems. Although approximately 41% of the land area within the NASP Complex remains relatively natural, only approximately 7.5% of land area remains as natural communities. The NASP Complex has taken measures, such as planting forest stands in previously cleared areas, to enhance the biological environment throughout the Complex. In addition, the NASP Complex uses prescribed burning and thinning to develop a natural structure in its managed forest stands. Natural resources management seeks to improve ecosystems and return them to previous ecosystem quality to the extent practicable within the constraints of military mission requirements.

3.8.1 Natural Vegetated Communities and Wildlife

FNAI defines a natural community as “a distinct and reoccurring assemblage of populations of plants, animals, fungi, and microorganisms naturally associated with each other and their physical environment.” In conjunction with rare plant and vertebrate surveys in 1996 and 1997, FNAI conducted surveys for natural communities at NASP, NTTC Corry, NOLF Bronson, and NETPDTC Saufley. Twenty-eight high quality natural communities representing 12 community types were identified within the NASP Complex (see Table 3-3). Due to development, no natural communities occur at Lexington Terrace Housing, U.S. Navy Hospital Corry, Navy Housing Corry, or the Navy Shopping Mall. Natural community locations, acreages, and descriptions, which were taken from FNAI and the Florida Department of Natural Resource (FDNR 1990), are provided in Table 3-3. Table 3-3 also lists wildlife species that are typical of the natural communities found at the NASP Complex.

3.8.2 Rare, Threatened and Endangered Species

The NASP Complex is within, or approached by, the range of at least 67 rare vertebrate taxa and 83 rare plant taxa. In 1996 and 1997, FNAI conducted surveys to determine the endangered, threatened, and rare plant and vertebrate species occurring at NASP, NTTC Corry, NOLF Bronson, BARP, and NETPDTC Saufley. Two federally listed species and 21 state listed species were identified within the NASP Complex. Eighteen rare vertebrate species and 10 rare plant species were identified at NASP; six rare vertebrate species and eight rare plant species were identified at NOLF Bronson (including BARP); and four rare vertebrate species and six rare plant species were identified at Saufley Field. In addition, a great blue heron rookery in the beaver pond was documented at NOLF Bronson. No federally or state listed threatened or endangered species are expected to occur at Lexington Terrace Housing, U.S. Navy Hospital

TABLE 3-3

**DESCRIPTIONS AND TYPICAL WILDLIFE SPECIES OF NATURAL COMMUNITIES
PRESENT WITHIN THE NASP COMPLEX**

Natural Community/ Location(s)^a	Description^b	Typical Wildlife Species^b
NASP		
Baygall/ NASP (137.5 acres)	Often found at the base of sandy slopes and is characterized as densely forested, peat-filled seepage depressions. The canopy consists of evergreen hardwood trees such as sweetbay, swamp red bay, and loblolly bay, and the understory tends to be open and contains shrubs and ferns. Baygalls depend upon seepage flow and a high water table.	Mole salamander, southern dusky salamander, southern mud salamander, opossum, short-tailed shrew, marsh rabbit, black bear, raccoon, southern mink, and bobcat.
Beach/Dune/ NASP (89.0 acres)	Found along shorelines subject to high energy waves; they are characterized as wind-deposited foredune and wave-deposited upper beach that are sparsely to densely vegetated with pioneer species, especially sea oats.	Ghost crab, six-lined racerunner, kestrel, red-winged blackbird, savannah sparrows, beach mouse, raccoon, shorebirds, and marine turtles (nesting habitat).
Estuarine tidal marsh/ NASP (40.3 acres)	Areas in which seawater is significantly diluted with freshwater; these communities may temporarily exhibit freshwater conditions during periods of heavy rainfall.	Marsh snail, periwinkle, mud snail, spiders, fiddler crab, marsh crab, green crab, isopods, amphipods, diamondback terrapin, saltmarsh snake, wading birds, waterfowl, osprey, rails, marsh wrens, seaside sparrows, muskrat, and raccoon.
Mesic flatwoods/ NASP (24.5 acres)	Forests with an open canopy of widely spaced pine trees with little or no understory and a dense ground cover of herbs and shrubs. They are located in areas with relatively flat, moderately to poorly drained terrain. Two common plant associations are longleaf pine-wiregrass-runner oak and slash pine-gallberry-saw palmetto.	Oak toad, narrowmouth toad, black racer, red rat snake, southeastern kestrel, brown-headed nuthatch, pine warbler, Bachman's sparrow, cotton rat, cotton mouse, black bear, raccoon, gray fox, bobcat, and white-tailed deer.
Scrub/ NASP (154.9 acres)	Characterized as having an almost open canopy forest of sand pines with dense thickets of scrub oaks and other shrubs; ground cover is sparse, and patches of barren sand are common.	Red widow spider, scrub wolf spider, oak toad, Florida scrub lizard, blue-tailed mole skink, sand skink, six-lined racerunner, coachwhip, ground dove, scrub jay, loggerhead shrike, yellow-rumped warbler, rufous-sided towhee, Florida mouse, and spotted skunk.
Scrubby flatwoods/ NASP (70.3 acres)	Characterized by an open canopy forest of widely scattered pine trees, a sparse shrubby understory, and numerous areas of barren white sand. The vegetation is a combination of scrub and mesic flatwoods species.	Oak toad, pine woods tree frog, gopher tortoise, six-line race runner, eastern diamondback, rattlesnake, bobwhite, ground dove, whee, southeastern pocket gopher, and Florida mouse.

TABLE 3-3

**DESCRIPTIONS AND TYPICAL WILDLIFE SPECIES OF NATURAL COMMUNITIES
PRESENT WITHIN THE NASP COMPLEX**

Natural Community/ Location(s)^a	Description^b	Typical Wildlife Species^b
Wet flatwoods/ NASP (42.8 acres)	Similar to mesic flatwoods, but their soils are less well drained; they may be inundated with water for one or more months during the rainy season. Scattered pine trees or cabbage palms compose the canopy, with either a thick shrubby understory and a sparse ground cover or a sparse understory and a dense ground cover of hydrophytic herbs and shrubs. Fire plays an important role in both mesic and wet flatwood communities.	Oak toad, cricket frog, chorus frog, black racer, diamondback rattlesnake, pygmy rattlesnake, red-shouldered hawk, bobwhite, opossum, cottontail rabbit, cotton rat, cotton mouse, raccoon, striped skunk, bobcat, and white-tailed deer.
NOLF Bronson		
Wet prairie/ NOLF Bronson (16.3 acres)	Characterized as treeless plains with a sparse to dense ground cover of grasses and herbs. Wet prairies occur on low, relatively flat, poorly drained terrain of the coastal plain. Sandy soils are typical, and these may often contain a clay or organic component. Hydrology and fire are important physical factors in maintaining wet prairie ecology.	Cricket frog, chorus frog, black racer, yellow rat snake, cottonmouth, pygmy rattlesnake, northern harrier, southeastern kestrel, killdeer, long-billed marsh wren, red-winged blackbird, marsh rabbit, cotton rat, and cotton mouse.
Saufley Field		
Blackwater streams/ Saufley (10.6 acres)	Intermittent seasonal watercourses that are tea-colored due to tannins, particulates, and dissolved organic matter and iron derived from drainage through swamps and marshes. These streams have sandy bottoms overlain by organics, and frequently underlain by limestone.	River longnose gar, gizzard shad, threadfin shad, redfin pickerel, chain pickerel, ironcolor shiner, Ohooppee shiner, weed shiner, blacktail shiner, chubsucker, channel catfish, banded topminnow, pygmy killifish, mosquitofish, mud sunfish, flier, banded sunfish, redbreast sunfish, redbreast sunfish, dollarsunfish, stumpknocker, spotted bass, black crappie, darters, Alabama waterdog, river frog, alligator, snapping turtle, alligator snapping turtle, river cooter, Florida cooter, peninsula cooter, stinkpot, spiny softshell, brown watersnake, beaver, and river otter.
Depression marsh/ Saufley Field (0.7 acres)	Characterized as shallow, usually rounded depressions located in sandy substrate; they are vegetated primarily with herbaceous species that may grow in concentric bands. Due to their relatively small size and isolation, this community type is considered extremely important in providing breeding and/or foraging habitat for amphibian species such as the flatwoods salamander, mole salamander, striped newt, and pinewoods treefrog.	Flatwoods salamander, mole salamander, tiger salamander, dwarf salamander, oak toad, cricket frog, pinewoods treefrog, barking treefrog, squirrel treefrog, southern chorus frog, ornate chorus frog, narrowmouth toad, eastern spadefoot toad, gopher frog, white ibis, wood stork and sandhill crane.

TABLE 3-3

**DESCRIPTIONS AND TYPICAL WILDLIFE SPECIES OF NATURAL COMMUNITIES
PRESENT WITHIN THE NASP COMPLEX**

Natural Community/ Location(s) ^a	Description ^b	Typical Wildlife Species ^b
Floodplain swamp/ Saufley Field (42.5 acres)	Occurs on flooded soils along stream channels and in low areas within river floodplains. Dominant vegetation usually consists of buttressed trees, such as cypress and tupelo, that are adapted to growing in water or wet environments; in general, the understory and ground cover of floodplain swamps are very sparse.	Marbled salamander, mole salamander, amphiuma, Alabama waterdog, Southern dusky salamander, two-lined salamander, three-lined salamander, dwarf salamander, slimy salamander, southern toad, cricket frog, bird-voiced treefrog, gray treefrog, bullfrog, river frog, Southern leopard frog, alligator, river cooter, stinkpot, Southeastern five-lined skink, broadhead skink, mud snake, rainbow snake, brown water snake, black swamp snake, cottonmouth, yellow-crowned night-heron, wood duck, swallowtail kite, Mississippi kite, red-shouldered hawk, woodcock, barred owl, chimney swift, hairy woodpecker, pileated woodpecker. Acadian flycatcher, Carolina wren, veery, white-eyed vireo, red-eyed vireo, parula warbler, prothonotary warbler, hooded warbler, Swainson's warbler, cardinal, towhee, opossum, short-tailed shrew, beaver, wood rat, rice rat, cotton mouse, golden mouse, bear, raccoon, and bobcat.
Seepage slope/ Saufley Field (4.0 acres)	Characterized as shrub thickets or boggy meadows on or at the base of slopes where moisture is maintained by down-slope seepage. Many of the plants that survive in seepage slopes are rare or endemic and considered endangered or threatened; among these are the carnivorous pitcher plants.	Pine barrens treefrog, squirrel treefrog, ribbons snake, and cottonmouth.

a Source: FNAI 1997 a, b, c.

b Source: FNAI and FDNR 1990.

Corry, Navy Housing Corry, or the Navy Exchange Mall, due to development; no surveys were completed at these locations (FNAI 1997a,b,c). Rare, threatened, and endangered vertebrates and their habitats occurring at the NASP Complex are identified in Table 3-4. Rare, threatened, and endangered plants and their habitats occurring at the NASP Complex are identified in Table 3-5. Maps showing the location of these species may be obtained from the Natural Resources Office in the Environmental Division.

A maternal colony of southeastern bats (*Myotis austroriparius*) was observed roosting inside the underground storm drain system at Saufley Field in 1996 (FFWCC 2000). The southeastern bat was formerly a federal candidate ranking level C2 species but was removed from federal listing in 1996. Due to the inadvertent disturbance of a manhole associated with the storm drain system in 1999, the bats vacated the storm drain and have not returned to date.

<p align="center">Table 3-4</p> <p align="center">RARE, THREATENED AND ENDANGERED VERTEBRATES OCCURRING WITHIN</p> <p align="center">THE NASP COMPLEX, FLORIDA 1996-1997</p>						
<p><i>Scientific Name</i> Common Name</p>	<p>Community in Which Found</p>	<p>Federal Status</p>	<p>State Status</p>	<p>Occurrence¹ ("X" indicates occurrence)</p>		
				NASP	Saufley Field	NOLF Bronson
<p><i>Alligator mississippiensis</i> American alligator</p>	Aquatic habitats	T(S/A)	SSC	X		X
<p><i>Casmerodius albus</i>³ Great egret</p>	Aquatic habitats	N	N	X		
<p><i>Crotalus adamanteus</i>³ Eastern diamondback rattlesnake</p>	Uplands	N	N	X		
<p><i>Egretta caerulea</i> Little blue heron</p>	Aquatic habitats	N	SSC	X		X
<p><i>Egretta thula</i> Snowy egret</p>	Aquatic habitats	N	SSC	X		X
<p><i>Elanoides forficatus</i> American swallow-tailed kite</p>	Forest Sherman Field	T	T	X		
<p><i>Eptesicus fuscus</i>³ Big brown bat</p>	Drainage tunnel	N	N		X	
<p><i>Gopherus polyphemus</i> Gopher tortoise</p>	Remnant sand dune, pine plantation	N	SSC	X	X	X
<p><i>Haematopus palliatus</i> American oyster catcher</p>	Shoreline	N	SSC	X		
<p><i>Macrolemys temminckii</i> Alligator snapping turtle</p>	Blackwater stream	C2 ²	SSC		X	
<p><i>Myotis austroriparius</i> Southeastern bat</p>	Drainage tunnel	C2 ²	N		X	
<p><i>Nerodia clarkii clarkii</i> Gulf salt marsh snake</p>	Estuarine tidal marshes	C2 ²	N	X		

<p align="center">Table 3-4</p> <p align="center">RARE, THREATENED AND ENDANGERED VERTEBRATES OCCURRING WITHIN THE NASP COMPLEX, FLORIDA 1996-1997</p>						
Scientific Name Common Name	Community in Which Found	Federal Status	State Status	Occurrence¹ ("X" indicates occurrence)		
				NASP	Saufley Field	NOLF Bronson
<i>Nyctanassa violacea</i> ³ Yellow-crowned night heron	Aquatic habitats	N	N	X		
<i>Nycticorax nycticorax</i> ³ Black-crowned night heron	Aquatic habitats	N	N	X		
<i>Pandion haliaetus</i> Osprey	Near shore waters, Perdido Bay	N	SSC	X		X
<i>Pelecanus occidentalis</i> Brown pelican	Shoreline, near shore waters	N	SSC	X		
<i>Rallus longirostris scottii</i> ³ Florida clapper rail	Estuarine tidal marshes	N	N	X		
<i>Rynchops niger</i> Black skimmer	Shoreline, nearshore waters	N	SSC	X		
<i>Sterna antillarum</i> Least tern	Shoreline, nearshore waters	N	T	X		
<i>Sterna caspia</i> ³ Caspian tern	Bayou Grande	N	N	X		
<i>Sterna maxima</i> ³ Royal tern	Shoreline, nearshore waters, Perdido Bay	N	N	X		X

Source: FNAI 1997a, 1997b, 1997c.

- 1 No federally- or state-listed threatened or endangered species were found to occur at NTTC Corry Station (FNAI 1997c). Specific location data is included in the FNAI Final Reports and may be obtained from the NRM in the Environmental Department.
- 2 The Federal Candidate ranking levels C2 and C3 were removed from federal listing in the spring of 1996.
- 3 Animal species considered rare in the state of Florida by FNAI and other experts, but which are without federal or state protection at this time.

KEY:

E=Endangered; T=Threatened; T(S/A)=Threatened due to Similarity of Appearance;
C=Candidate; SSC=Species of Special Concern; N=Not listed; and P=Proposed for Listing.

<p align="center">Table 3-5</p> <p align="center">RARE, THREATENED AND ENDANGERED PLANT SPECIES OCCURRING WITHIN THE NASP COMPLEX, FLORIDA 1996-1997</p>						
<i>Scientific Name</i> Common Name	Community in Which Found	Federal Status	State Status	Occurrences¹ ("X" indicates occurrence)		
				NASP	Saufley Field	NOLF Bronson
<i>Chrysopsis godfreyi</i> Godfrey's golden aster	Beach dune	C2 ²	N	X		
<i>Drosera intermedia</i> Spoon-leaf sundew	Seepage slope/baygall, wet prairie, depression marsh, blackwater stream edge	N	T	X	X	X
<i>Helianthemum arenicola</i> ² Gulf rock rose	Beach dune	N	N	X		
<i>Lilaeopsis carolinensis</i> Carolina lilaeopsis	Seepage stream/ditch	C3 ³	N	X		
<i>Lilium catesbaei</i> Southern red lily	Wet prairie	N	T			X
<i>Pantathera sagittifolia</i> ² Spoonflower	Seepage stream/ baygall	N	N	X		
<i>Pinguicula planifolia</i> Chapman's butterwort	Wet prairie, pine plantation	C2 ²	T		X	X
<i>Pinguicula primuliflora</i> Primrose-flowered butterwort	Seepage slope	N	E		X	
<i>Plantanthera blephariglottis</i> White-fringed orchid	Clear zone	N	T	X		
<i>Platanthera nivea</i> Snowy orchid	Wet prairie	N	T			X
<i>Polygonella macrophylla</i> Large-leaf jointweed	Scrub	C2 ²	T	X		
<i>Sarracenia leucophylla</i> White-top pitcher-plant	Baygall/seepage stream/slope, wet prairie, depression marsh, blackwater stream edge, pine plantation	C2 ²	E	X	X	X
<i>Sarracenia psittacina</i> Parrot pitcher-plant	Baygall/ seepage stream, wet prairie, pine plantation	N	T	X	X	X
<i>Sarracenia purpurea</i> Purple pitcher-plant	Seepage slope, blackwater stream edge, depression marsh	N	T		X	X
<i>Xyris drummondii</i> Drummond's yellow-eyed grass	Clear zone, wet prairie	C2 ²	N	X		X

Source: FNAI 1997a, 1997b, 1997c.

- 1 No federally - or state-listed threatened or endangered species were found to occur at NTTC Corry (FNAI 1997c). See above.
- 2 The Federal Candidate ranking levels C2 and C3 were removed from federal listing in the spring of 1996.
- 3 Plant species considered rare in the state of Florida by FNAI and other experts, but which are without federal or state protection at this time.

KEY:

E=Endangered; T=Threatened; T(S/A)=Threatened due to Similarity of Appearance;
C=Candidate; SSC=Species of Special Concern;
N=Not listed; and P=Proposed for Listing.

In addition to species known to occur at the NASP Complex, the following federally protected species potentially occur in adjacent estuarine and marine waters: gulf sturgeon (*Acipenser oxyrinchus desotoi*); loggerhead turtle (*Caretta caretta*); green turtle (*Chelonia mydas mydas*); leatherback turtle (*Dermochelys coriacea*); hawksbill turtle (*Eretmochelys imbricata imbricata*); Atlantic ridley turtle (*Lepidochelys kempii*); and West Indian manatee (*Trichechus mantus latirostris*).

3.8.3 Forest Resources

The NASP Complex manages approximately 2,487 acres of forestland. This includes forest stands at NASP (Figure 3-5), NOLF Bronson (Figure 3-6), Corry Station (Figure 3-7), and Saufley Field (Figure 3-8). Basic stand data and prescription information is stored as a database for use in the computer program FMIS. The NASP Complex uses this database in its Forest Management Program. The predominant forest cover at the NASP Complex includes slash, sand, and longleaf pine. Inventory data for each forest stand is located in Table B-1 (see Appendix B).

The commercial market for forest products in the region is relatively good. There are pulp mills in Escambia County, Florida, and Mobile and Escambia counties, Alabama; saw mills in Escambia and Baldwin counties, Alabama; and pole mills in Escambia County, Alabama. In addition, a sawmill is under construction in Escambia County, Florida.

3.9 Preserves

3.9.1 Tarkiln Bayou State Preserve and the Perdido Pitcher Plant Conservation and Recreation Land (CARL) Project

The Perdido Pitcher Plant Prairie Preserve (P5) is an initiative to acquire, and preserve from development, natural resources in the southwestern portion of Escambia County. P5 is a land acquisition project in the State of Florida's Florida Forever Program (formerly known as the Preservation 2000 Program) administered by the FDEP's Conservation and Recreational Lands

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(CARL) Program. The area targeted for protection includes approximately 7,000 acres of forested wetlands, open wetlands and prairies, and adjacent transitional wetland/upland boundaries (see Figure 2-1). Land acquired in the P5 initiative will be managed as the Tarkiln Bayou State Preserve by FDEP. Natural resources to be protected by this initiative include watershed areas of the Perdido Bay, Garcon Swamp, and Big Lagoon along the intracoastal waterway of the Gulf of Mexico. The initiative will result in many species and habitats of fish, wildlife, and plants native to Florida being protected, including several threatened and endangered species.

Initial acquisition included a 900-acre purchase directly south of NOLF Bronson, which contains the following nine natural communities: maritime hammock; sandhill; xeric hammock; baygall; depression marsh; wet flatwoods; wet prairie; estuarine tidal marsh; and estuarine unconsolidated substrate. This 900-acre property includes watershed areas of Perdido Bay, Garcon Swamp, and Big Lagoon and accounts for approximately 13% of the P5 CARL Project.

3.9.2 Jones Swamp Preserve

The Jones Swamp Preserve is immediately south of Corry Station. It consists of 1,300 acres located within a developed mixed-use area that includes office, multifamily residential, commercial, and institutional uses. The Jones Swamp Preserve includes a portion of Jones Creek, forested wetlands, and associated uplands. The wetland preserve is part of a 2,700-acre watershed that feeds into Jones Creek and, ultimately, Bayou Chico. There are strong indicators that undiscovered historical sites are in and around the preserve (Jones Swamp Preserve Management Plan 1997).

3.9.3 Fort Barrancas and Advanced Redoubt

Fort Barrancas and Advanced Redoubt are NPS managed areas within the boundaries of NASP. They are operated and managed by the Gulf Islands National Seashore (GINS).

3.9.4 Fort Pickens Aquatic Preserve

The Fort Pickens Aquatic Preserve, one of 42 aquatic preserves in the State of Florida, is considered an “Outstanding Florida Water” (OFW). Designated as an aquatic preserve in 1970 by the Florida Legislature, the preserve is a beautiful 34,000-acre stretch of the Florida Gulf Coast that is directly adjacent to Pensacola Bay. The preserve was designated for the purpose of

preserving the biological resources in the area, and maintaining these resources in essentially a natural condition.

The preserve boundaries encompass only the sovereign submerged lands below the mean high water line in Santa Rosa Sound, Pensacola Bay, and Big Lagoon, extending northward to the Gulf Intracoastal Waterway. The preserve also includes the lands below mean high water in the Gulf of Mexico, to a line 3 miles south of the coast. The preserve surrounds the western end of Santa Rosa Island, immediately east of NASP, and the eastern end of Perdido Key. The uplands adjacent to the preserve are federally owned and are known as the Gulf Island National Seashore. The aquatic preserve provides an excellent habitat for fish and wildlife because the islands and adjacent submerged lands are some of the only undeveloped coastal areas in the region. Due to the proximity of the Gulf Intracoastal Waterway and the Pensacola Ship Channel, the preserve experiences some of the heaviest boat traffic in northern Florida (Fort Pickens Aquatic Preserve Management Plan 1992). Because of the increased threats to this area by recreational uses, intracoastal waterway traffic, and general development, a Fort Pickens Aquatic Preserve Management Plan was developed by the State to protect the preserve's natural resources for the benefit of future generations.

3.10 Recreational Activities

The MWR Division, which is within the Quality of Life Department, promotes and maintains the well being, morale, and welfare of military personnel and their dependents, both active and retired, in addition to DoD civilians when possible. This is accomplished through the programming and operation of recreation and club facilities. The division maintains branches for NASP, NTTC Corry, and NAS Whiting Field. The NTTC Corry branch includes a Saufley Field Section. The MWR maintains outdoor recreational programs and facilities such as the marinas, picnic pavilions, campgrounds, cabins, golf course, and ball fields. The Complex also offers equipment rentals, trips (e.g. rafting, canoeing, hiking, biking, horseback riding), camper rentals, and cabin rentals. The NRM and the Environmental Division review and provide natural resources recommendations and guidance for all new projects proposed by MWR.

The general public is allowed access to several natural and cultural resources at the NASP Complex. The CO authorizes access for educational and outdoor natural resources recreational activities consistent with the military mission and security levels. Currently, public access is granted for all NPS areas; cultural resources areas, such as the Presidio Santa Maria de Galvé and the Pensacola Lighthouse; the Sunec-ke Nature Trail, Bayou Grande Nature Trail, and Trout Point Nature Trail at NASP; and the Saufley Field Nature Trail at Saufley Field. In

addition, the public has limited access to the MWR jogging/fitness trail and to Bayou Grande and Sauflay Field primitive camping areas on a reservation basis. Currently, NOLF Bronson is open to the public by special request, and scout groups are allowed access to the primitive camping areas at BARP.

Outdoor recreation programs at the NASP Complex include a wide variety of outdoor recreation opportunities, which take advantage of physical resources found within the boundaries of the Installations. The NASP Complex is located in southern Escambia County, in an area of the Florida Panhandle where an abundance of recreation and potential recreation opportunities exist. NASP is bordered on three sides by large bodies of water including Pensacola Bay, Bayou Grande, and Big Lagoon. NOLF Bronson borders Perdido Bay.

The outdoor recreation program at the NASP Complex derives numerous benefits from the attractive natural settings in and around the Complex and from the temperate marine climate associated with the upper Gulf Coast. The nice climate and proximity of the Complex to several large bodies of water affords such opportunities as swimming, fishing, canoeing, sailing, and motorized boating on a year-round basis. The MWR operates and manages two marinas and a family picnic area at NASP which provide access for recreational opportunities related to the water. Bayou Grande Sailing Marina and Sherman Cove Marina offer opportunities for renting boats, canoes, and fishing equipment. They also provide boat ramps and storage facilities for private watercrafts. In addition, BARP offers boat rentals and access to Perdido Bay.

In addition to limitless water recreation opportunities, the Complex offers several other outdoor recreation activities. Additional concentrated outdoor recreation activities include camping, picnicking, fitness/jogging, and outdoor education/interpretation. Dispersed outdoor recreation activities consist of hiking, bicycling, and nature study. Hunting and the use of off-road vehicles are prohibited at the NASP Complex. There are also numerous significant historical and archeological sites at the Complex including two NPS managed areas, Fort Barrancas, and Advanced Redoubt, operated and managed by (GINS). Outdoor recreational opportunities available at the NASP Complex are summarized in Appendix C. NPS maps showing recreational areas within the NASP Complex may be obtained from the Natural Resources Office in the Environmental Division.

This section presents the goals, objectives, and strategies for natural resources management at the NASP Complex over the next 10-year period (2001-2010). Five goals have been identified for the NASP Complex:

- Goal 1 Protect and maintain natural resources within the NASP Complex by continuation and enhancement of ecologically appropriate and beneficial land use and management practices, while ensuring the continuation of the military mission.
- Goal 2 Protect and enhance forest resources by practicing ecologically-sound forest management leading to sustained yield of quality forest products, watershed protection, and wildlife habitat.
- Goal 3 Protect, maintain, and restore native communities of plant and animal life, while improving the quality of life and ensuring the military mission.
- Goal 4 Provide facilities and develop policies that allow for recreational and educational uses of natural resources, and result in positive effects to these natural resources while improving the quality of life.
- Goal 5 Protect and conserve the ecological value and diversity of natural resources by fostering knowledge of, and participation in, adaptive ecosystem management.

Goal 1 primarily pertains to Land Management issues (see Section 5.1); Goal 2 to Forestry issues (see Section 5.2); Goal 3 to Fish and Wildlife issues (see Section 5.3); Goal 4 to Outdoor Recreation issues (see Section 5.4); and Goal 5 to the general implementation of adaptive ecosystem management. Through these goals, the NASP Complex will create and maintain a balance between the Complex's natural resources and military operations. To ensure success in achieving these goals at the NASP Complex, a framework or "road map" of objectives, strategies, projects, and management initiatives is provided in this section. The goals, objectives, strategies, projects, and initiatives are referenced throughout the INRMP where appropriate and relevant.

Definitions:

Goals. Goals are general expressions of desired future conditions that represent the long-range aim of management. For this INRMP, goals are compatible with the military mission of the NASP Complex and provide conservation and ecosystem management targets and direction.

Issues. To establish objectives for achieving the stated INRMP goals at the NASP Complex, issues that must be addressed were identified, and are described in Section 5. Issues may include the presence, abundance, distribution, function, condition, and sensitivity of a particular natural resources feature, resources-based human function or other attribute on the Installation, or a broader ecological or community setting. Issues may also include the effectiveness or ineffectiveness of existing or past practices regarding management and use of resources on the Installation, and the requirements for regulatory compliance regarding the management and use of these natural resources.

Objectives. Objectives can be defined as defensible targets or specific components of a goal, the achievement of which represents measurable progress toward that goal. Objectives help to focus management activities and provide a yardstick against which to evaluate and communicate results. One or more objectives may be identified for successfully achieving a particular goal.

Strategies. Strategies establish the approach and expected end result for the actions that are necessary to accomplish stated objectives. One or more strategies may be identified for accomplishing a particular objective. Strategies define certain actions to be taken by the DoN, such as the completion of specific projects and/or the implementation of other management initiatives at the NASP Complex. Strategies usually specify timeframes for completion of various actions.

Projects. Discrete actions for fulfilling a particular strategy are identified as projects. Projects may be required to fulfill obligations by the NASP Complex in meeting regulatory requirements regarding natural resources management, or may enhance existing measures for ensuring compliance. Other projects are not compliance-driven, but may allow for more effective and efficient management of natural resources and/or simply provide for sound natural resources stewardship. Projects require labor resources and funding in addition to the day-to-day requirements of the Installation.

Initiatives. Initiatives are fundamental, non-measurable actions necessary for successful implementation of a strategy. Some strategies identify the need for incorporating sound natural resources management principles into the day-to-day decision-making process, and other actions of the various departments at the NASP Complex. These types of initiatives typically strive to elevate awareness throughout the organization, avoid potentially reactive approaches to natural resources

issues, and facilitate a proactive approach to addressing natural resources within the mission of the Installations. Initiatives attempt to solve problems that preclude meeting specific strategies.

Goal 1: Protect and maintain natural resources within the NASP Complex through the continuation and enhancement of ecologically appropriate and beneficial land use and management practices, while ensuring the continuation of the military mission.

Issue: As development and training activities have a significant potential to affect land area at the NASP Complex, land management decisions and practices will become increasingly important aspects of ecosystem management. The use and management of lands for military mission needs, and the decision-making process regarding such land use, directly affect the sustainability of the ecosystem. Specific components of land management include wetlands (Section 5.1), invasive and exotic species (Section 5.2), soil conservation and erosion control (Section 5.3), stormwater and water quality control (Section 5.4), landscaping and grounds maintenance (Section 5.5), floodplain management (Section 5.6), and urban forestry (Section 5.7). To protect and maintain natural resources while ensuring the continuation of the military mission, the NASP Complex needs to implement programs to meet the following objectives:

Objective 1.1: Continue existing, and establish new programs and procedures to monitor, maintain, and enhance wetlands and water quality;

Objective 1.2: Reduce and control invasive and exotic species;

Objective 1.3: Maintain the attenuation capacity of the remaining undisturbed acreage within the 100-year floodplain;

Objective 1.4: Ensure that land management and land use decisions comply with all applicable laws, executive orders, regulations, directives, and instructions, and that adverse impacts to the natural environment are minimized;

Objective 1.5: Protect and enhance shorelines through existing and new programs; and

Objective 1.6: Implement environmentally beneficial landscaping, grounds maintenance, and urban forestry practices.

Objective 1.1: Continue existing, and establish new programs and procedures to monitor, maintain, and enhance wetlands and water quality.

Wetland and water quality may be improved through the proper management of stormwater runoff, soil erosion, and pesticide and fertilizer use at the NASP Complex. The following strategies were

developed to accomplish Objective 1.1. Projects and initiatives pertaining to each strategy are also listed.

Strategy 1.1.1: By June 2004, the NASP Complex will evaluate its stormwater management program and activities contributing to stormwater runoff and/or pollutant loading in stormwater runoff, and implement BMPs to minimize stormwater pollution.

Projects: None.

Initiatives:

- (1) The NASP Complex will continue to manage stormwater in accordance with applicable permits.

Action shall be undertaken by the Environmental Engineer in the Environmental Division, in concert with the NRM. Action will include consultation with environmental engineers and professionals from SOUTHDIV's LMD.
- (2) The NASP Complex will, as part of their oil and hazardous material SPCC Plan, establish a natural resources damage assessment program for assessing damage, or potential damage, from the release of oil or HS that may injure, or threaten to injure, the natural resources of the United States.

Action shall be undertaken by the Environmental Engineer in the Environmental Division, in concert with the NRM. Action will include consultation with environmental engineers from SOUTHDIV.
- (3) The NASP Complex should form a stormwater pollution prevention (P2) team to complete and implement a Complex-wide SWPPP. The team should:
 - Monitor stormwater at the NASP Complex and identify sources of stormwater pollution;
 - Assess sites, determine pollutant sources and risks, determine and direct implementation of appropriate BMPs; and
 - Ensure that stormwater issues are addressed for all "ground-breaking" activities and projects.
- (4) Create a GIS layer showing watershed boundaries, stormwater piping schematics, and IRP sites, and other sources of pollution.
- (5) The Environmental Division should review stormwater discharge into wetlands and waterbodies to address the protection of water quality and ensure that:
 - Stormwater runoff is subjected to BMPs prior to discharging into wetlands and waterbodies. BMPs shall prevent or reduce the amount of pollution in water to a level compatible with Florida Surface Water Quality Standards;
 - Stormwater discharge onto the NASP Complex from external sources does not adversely impact water quality on the NASP Complex (consult FDEP and Escambia County in the event that incoming water does not meet Florida Surface Water Quality Standards);

- No site activities on the NASP Complex result in violation of state water quality standards associated with the siltation of wetlands, or reduction in the natural retention or filtering capability of wetlands;
- Adequate soil erosion measures are implemented. Cross Reference: Strategy 1.1.2; and
- No site activities allow water to become a health hazard or contribute to the breeding of mosquitoes.

Strategy 1.1.2: By January 2003, The NASP Complex will develop a soil erosion control management plan, and will reduce the rate of soil erosion through the implementation of long-term measures and projects.

Project: None.

Initiatives: Determine areas where soil type presents a threat of erosion. Cross Reference: Strategy 5.2.3 (GIS maps).

- (1) Establish BMPs to prevent soil erosion problems at the NASP Complex.
 - It will be the responsibility of a Natural Resources Program representative to work with facility and environmental personnel to ensure implementation of soil erosion control measures.
- (2) Train and educate all contract and department personnel on actions that may directly or indirectly contribute to soil erosion problems, and measures that can be employed to avoid or lessen these conditions. Cross Reference: Strategy 5.3.1.
 - Consult with soil conservation experts from the SOUTHDIR's LMD, as well as with the USDA NRCS on the training program development. Cross Reference: Section 5.1.3 - Additional Sources of Information.

Strategy 1.1.3: By January 2003, implement recommendations from the Pest Management Program Review (see Section 2.5.4), including the following:

- Continue to use integrated pest management (IPM) techniques in pest management programs and emphasize the use of pesticides with low toxicity and low application rates; and
- Consolidate present NASP Complex PMPs into one plan.

Projects: Project No. 10 – Timber Stand Improvement; see Appendix A.
Project No. 23 – Natural Resources Training; see Appendix A.

Initiatives:

- (1) Ensure that Natural Resources staff is trained (and certified) in accordance with the PMP.

- (2) Ensure that grounds maintenance personnel receive pest management education, and verify that they understand the procedures they are allowed to perform, and/or require certification.
- (3) Inventory current pesticide and fertilizer use and consult SOUTHDIV's Applied Biology Department (ABD) (843-820-7140) and the FDACS Pesticide Division (850-487-2130) for means of reduction.
- (4) Consider non-pesticide removal methods, or removal using pesticides with lower toxicity applied at reduced rates. Cross Reference: Strategy 2.1.1, and Sections 5.1.2 and 5.1.5 - Additional Sources of Information.
- (5) Consult with foresters, fish and wildlife biologists, and soil conservationists from SOUTHDIV's LMD, as well as with federal, state, and county wildlife biologists, foresters, and land managers.
- (6) Consult with Installation Facility Managers and SOUTHDIV's ABD (843-820-7140) to consolidate individual plans and produce a PMP for the NASP Complex.

Strategy 1.1.4: The NASP Complex will inventory wetlands and assess their function and quality on a routine basis (approximately every 5-10 years), monitor 50-foot buffers for all wetlands, and promote land use and land management practices that will not adversely affect wetland resources.

Projects: Project No. 1 - Wetlands Management; see Appendix A.

- Initiatives:**
- (1) Monitor the quality and function of wetlands on the NASP Complex using the Wetlands Rapid Assessment Program (WRAP) developed by the South Florida Water Management District, and establish a baseline from which to evaluate *no net loss* of wetlands. Cross Reference: Section 5.1.1 – Additional Sources of Information.
 - (2) Continue to implement management practices (e.g. prescribed burning) to enhance wetland habitat, where appropriate (see Section 5.3.2).
 - (3) Continually monitor 50-foot vegetative buffers around all wetlands.
 - Inventory wetlands to identify areas with insufficient or inadequate buffering. List any areas with insufficient or inadequate buffering, identified by the survey, as projects in subsequent INRMP updates.
 - Encourage the use of volunteers (e.g. Scout troops, SCA) to improve buffers of native vegetation.
 - Use native species and xeriscaping principles when creating buffers. Cross References: Section 5.1.5 - Additional Sources of Information (for xeriscaping).
 - (4) Create a GIS layer for wetland quality.

Strategy 1.1.5: Continue using BMPs for forest management activities to ensure watershed protection.

Projects: Project No. 9 – Forest Product Sales; see Appendix A.
Project No. 10 - Timber Stand Improvement; see Appendix A.
Project No. 12 – Fire Management; see Appendix A.

Initiatives: (1) Consult with foresters and soil conservationists from SOUTHDIV's LMD, as well as with federal, state, and county foresters, soil scientists, and land managers.

Objective 1.2: Reduce and control invasive and exotic species.

This objective will ensure that invasive and exotic species do not interfere with military and recreational activities or the quality and functions of wildlife habitats, forests, wetlands, or other resources and processes. The following strategies have been developed to address invasive and exotic species. Projects and initiatives pertaining to each strategy are also listed.

Strategy 1.2.1: By September 2003, the NASP Complex will prepare a plan (Control Plan) and implementation strategy for the removal of invasive and exotic species. By September 2004, the NASP Complex will implement the Control Plan.

Project: Project No. 2 – Invasive and Exotic Species Control; see Appendix A.

Initiatives:

- (1) Develop an invasive and exotic species management strategy that involves a survey of the NASP Complex to determine: extent of exotic and invasive species; removal methods, including time of year for removal; and pesticide application rates.
 - Consult SOUTHDIV's ABD (843-820-7140) and the FDACS Pesticide Division (850-487-2130) to determine removal methods. Consider non-pesticide removal methods and removal using pesticides with lower toxicity and applied at reduced rates. Cross Reference: Strategy 1.1.3 and Section 5.1.2 - Additional Sources of Information for invasive and exotic species control.
 - Consult with foresters and fish and wildlife biologists from SOUTHDIV's LMD, as well as with federal, state, and county wildlife biologists, foresters, and land managers, for identification of invasive and exotic species, and for appropriate, effective measures to protect fish and wildlife. Cross Reference: Section 5.1.2 - Additional Sources of Information for invasive and exotic species control.
- (2) Identify individuals or groups that could contribute to the removal effort.
 - NASP Complex natural resources staff members.
 - Contractor and Installation personnel. Cross Reference: Strategy 5.3.1.
 - Volunteer groups (e.g. Scout troops, SCA). Cross Reference: Strategy 5.3.4.
 - Special Interest Groups (e.g. TNC).

- (3) Ensure adequate training of removal teams. Cross Reference: Strategy 5.3.2.
- (4) Maintain a program for the eradication and control of invasive and exotic species and prohibit the planting of such species as part of NASP Complex's Grounds Maintenance Plan. Develop a monitoring and re-removal program for problem areas. Cross References: Section 5.1.2 – Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Invasive Species.

Objective 1.3: Maintain the attenuation capacity of the remaining undisturbed acreage within the 100-year floodplain.

Most of the ecological functions of the floodplain, such as the transport and cycling of nutrients and provision of productive and essential habitat, have been lost. Only fragments of the original floodplain community remain. The following strategies have been developed to address development of, and impacts to, the 100-year floodplain.

Strategy 1.3.1: By 2001, the NASP Complex will begin reviewing and continue monitoring proposed activities for impact avoidance to the attenuation capacity of the 100-year floodplain. If it is determined that development is necessary within the 100-year floodplain to support the military mission, development shall first be located in the previously disturbed areas of the floodplain.

Projects: None.

- Initiatives:**
- (1) It will be the responsibility of the Natural Resources Program representative to work with facility and environmental personnel to ensure implementation of the floodplain management strategy. Cross Reference: Strategy 5.2.3.
 - (2) Map undisturbed and disturbed areas of the 100-year floodplain for use in the decision-making process. Cross Reference: Strategy 5.2.3.
 - (3) Where there is no practical alternative to development within the 100-year floodplain, construction methods at the NASP Complex should be such that damage will be minimized in the event of flooding, thus avoiding contamination of waters. The NASP Complex will evaluate the county's floodplain regulation, which addresses construction and building codes, as guidance for development in the floodplain.
 - (4) Retain the natural attenuation and filtering capacity of wetlands within the 100-year floodplain.
 - Ensure *no net loss* of wetlands. Cross Reference: Strategy 1.1.4 (1).
 - Ensure adequate buffers around, and prescribed burns through, wetland areas to maintain wetland attenuation capacity. Cross Reference: Strategy 1.1.4.

Objective 1.4: Ensure that land management and land use decisions comply with all applicable laws, executive orders, regulations, directives, and instructions, and that adverse impacts to the natural environment are minimized.

This objective may be accomplished through appropriate site selection and development to avoid impacts associated with unsystematically (random) located human-made linear and nonlinear features. The arbitrary location of features undermines ecological processes by separating and isolating wildlife and plant populations, which can render the fragmented parcels unsustainable for wildlife. An arbitrary method of locating features also increases costs associated with daily land management practices and infrastructure improvements. The following strategy has been developed to accomplish this objective.

Strategy 1.4.1: Throughout the course of this INRMP, the NASP Complex will ensure implementation of policies that minimize adverse impacts to ecosystem resources from land disturbance activities (e.g. clearing, training).

Projects: None.

Initiatives:

- (1) The Site Plan Activity Guidelines in Section 5.5 will be followed to minimize and avoid adverse impacts to resources.
- (2) It will be the primary responsibility of NRM to work with facility managers and environmental personnel to ensure the use of site selection and site plan development criteria to minimize impacts to the NASP Complex's environmental and ecological resources.
- (3) Use natural resources maps as a tool for minimizing impacts. Cross References: Strategy 5.2.3 and Project No. 26 – Natural Resources Technology.

Objective 1.5: Protect and enhance existing shorelines through existing and new programs.

Approximately 17 miles of shoreline occur at NASP and 1 mile occurs at NOLF Bronson. The following strategy has been developed to accomplish shoreline protection and enhancement.

Strategy 1.5.1: By 2003, establish a program to prevent further degradation of shorelines.

Projects:

Project No. 3 - Beach Renourishment; see Appendix A.

Project No. 4 - Establish Shoreline Vegetation, see Appendix A.

Initiatives:

- (1) By June 2004, establish a natural shoreline buffer along undeveloped areas adjacent to waterbodies. A natural vegetated buffer will be maintained from

the normal high water line to 50 feet landward. Allowances may be made for essential military mission requirements.

- (2) Ensure consistency with FCMP, as well as FDEP regulations for shoreline development.
- (3) Identify areas of beach erosion.

Objective 1.6: Implement environmentally beneficial landscaping, grounds maintenance, and urban forestry practices.

By using native species and xeriscaping concepts, the DoN will reduce the need for irrigation, pesticides, and fertilizers. In addition, urban forests provide numerous quality of life benefits to both humans and wildlife (see Section 5.1.7). The following strategies were developed to accomplish Objective 1.6.

Strategy 1.6.1: By October 2001, the NASP Complex will implement general landscape management practices consistent with the concepts presented in this INRMP.

Projects: Project No. 2 - Invasive and Exotic Species Control.
Project No. 23 - Natural Resources Training.

Initiatives: (1) Educate grounds maintenance personnel on the principles of landscaping discussed in this INRMP (see Section 5.1.5). Cross References: Strategy 5.3.1.
(2) Evaluate the use of combined organic and mineral fertilizers. Slow release fertilizers will be preferred over other mineral fertilizers.

Strategy 1.6.2: By October 2005, the NASP Complex will apply xeriscaping principles using native species for new landscaping, and will phase in these principles for existing landscapes.

Projects: Project No. 2 - Invasive and Exotic Species Control.
Project No. 23 - Natural Resources Training.
Project No. 7 - Urban Forestry.

Initiatives: (1) Educate grounds maintenance personnel on the principles of xeriscaping. Cross References: Strategy 5.3.1 and Section 5.1.1.
(2) Use volunteer groups and/or interested Installation personnel to assist in plantings.
(3) Integrate the concept of xeriscaping into the Grounds Maintenance Plan. Cross Reference: Section 5.1.5.

- (4) Develop a xeriscaping program, enlist the services of foresters, fish and wildlife biologists, and soil conservationists in SOUTHDIR's LMD, as well as federal, state, and county wildlife biologists, foresters, and land managers. Cross Reference: Section 5.1.5 - Additional Sources of Information (for xeriscaping).
- (5) Remove invasive and exotic species. Cross Reference: Strategy 1.2.1.

Strategy 1.6.3: The NASP Complex will continue to follow its working Urban Forestry Plan and implement projects to enhance wildlife habitat and aesthetics in developed areas.

Projects: Project No. 7 – Urban Forestry; see Appendix A.

- Initiatives:**
- (1) Produce a formal Urban Forestry Plan for distribution.
 - (2) Use volunteers (e.g. Scout troops, SCA) for planting. Cross Reference: Strategy 5.3.2 (1).
 - (3) Train and educate grounds maintenance personnel on the principles of urban forest management.
 - (4) Ensure that the NRM reviews all planned maintenance for effects on urban forests. Additional duties include oversight and management of inventories, plantings, removals, pruning, fertilization, and protection practices. Construction and facility managers shall coordinate with the NRM concerning replacement of trees removed for any reason, except due to natural causes.
 - (5) Ensure that the Facilities Management Officer coordinates Installation planning, construction, and maintenance with the NRM to ensure a positive effect on the Installation urban forest.
 - (6) Ensure that the Urban Forest Management Program conforms to technical and professional recommendations as provided NAVFACENGCOM or cooperating agencies.
 - (7) Observe the first week of December as “Tree Awareness Week”, and conduct educational programs and tree planting projects.

Goal 2: Protect and enhance forest resources by practicing ecologically-sound forest management leading to sustained yield of quality forest products, watershed protection, and wildlife habitat.

Issue: The NASP Complex manages approximately 2,486 acres of commercial forestland. Ecologically-sound stewardship involves managing forestland for various components including forest products (i.e. timber), wildlife habitat, aesthetic value, and recreational potential. Components of the annual work plan generally include firebreak management, prescribed burning, timber sales, timber inventory management, site preparation and

reforestation, forest road work, and equipment operation and maintenance of forestry transport truck, tractor-plow unit, and other equipment. To protect and enhance forest resources, the NASP Complex needs to implement programs to address the following objectives:

Objective 2.1: Practice the ecosystem management concept for sustained yield of forest products and forest health;

Objective 2.2: Manage forests in an ecologically sound way to provide habitat for wildlife; and

Objective 2.3: Manage forest stands for watershed protection.

Objective 2.1: Practice the ecosystem management concept for sustained yield of forest products and forest health.

Sustained yield is the management of forest resources for continuous production, with the aim of achieving an approximate balance between net growth and harvest. Healthy forests may be maintained through silvicultural activities (see Section 5.2.1). Silvicultural activities that will be used at the NASP Complex include harvesting, herbicide applications, and prescribed burns. The following strategies were developed to accomplish Objective 2.1.

Strategy 2.1.1: Continue managing forest stands through harvesting, herbicide applications, and prescribed burning as outlined in the Forest Management Plan (see Appendix B)

Projects:

- Project No. 9 - Forest Product Sales; see Appendix A.
- Project No. 10 – Timber Stand Improvement; see Appendix A.
- Project No. 12 - Fire Management; see Appendix A.

Initiatives:

- (1) Using competitive timber sales contracts, sell timber to private logging contractors for removal. Awards will be made based on the highest return to the Navy.
- (2) Identify certified prescribed burn training programs. Ensure that the program and its duration are compatible with the timeframe of the implementation strategy.
 - Training will be conducted through Florida's Interagency Prescribed Fire Course administered through Hillsborough Community College. This course is offered at various locations throughout the state, but requires the participant to complete three supervised prescribed burns to become a Certified Burn Technician.
- (3) Identify training programs for Federal Wildland Firefighting.
- (4) Consult with foresters from SOUTHDIV's LMD, as well as state and county foresters.

Strategy 2.1.2: By August 2001, the NASP Complex will support the training and certification of one additional individual in prescribed burn management in addition to the NRM. By August 2002, the NASP Complex will have a minimum of three Installation personnel trained and certified in prescribed burn management.

Projects: Project No. 23 – Natural Resources Training.

Initiatives: Cross Reference: Strategy 2.1.1 (2) (3).

Strategy 2.1.3: Perpetuate the prevailing pine forest while giving equal emphasis to hardwoods in those areas best suited to such species.

Projects: Project No. 9 – Forest Product Sales.
Project No. 10 - Timber Stand Improvement.
Project No. 12 – Fire Management.

Initiatives: (1) Update FMIS regularly.
(2) Monitor for insect/disease outbreaks.

Objective 2.2: Manage forests in an ecologically-sound manner to provide habitat for wildlife.

Strategy 2.2.1: Continually, evaluate forest management practices and their effects on ecosystems and wildlife habitat and continue programs to protect rare, threatened, and endangered plant and animal species.

Projects: Project No. 12 - Fire Management; see Appendix A.
Project No. 9 - Forest Product Sales; see Appendix A.
Project No. 13 - Biological Monitoring; see Appendix A.
Project No. 15 – Species Protection and Habitat Development; see Appendix A.

Initiatives: (1) Review management recommendations outlined in the rare plant, rare vertebrate, and natural community surveys conducted in 1997 by FNAI (see Section 2.5.6)
(2) Review findings of plant survey (for *Chrysopsis godfreyi* and *Polygonella macrophylla*) performed in 1997 by FNAI (see Section 2.5.6).
(3) Seek additional management suggestions from foresters, fish and wildlife biologists, and soil conservationists from SOUTHDIV's LMD, as well as federal, state, and county wildlife biologists, foresters, and land managers.

Objective 2.3: Manage forest stands for watershed protection.

Strategy 2.3.1: Cross Reference: Strategy 1.1.5.

Projects: Project No. 9 – Forest Product Sales.
Project No. 10 - Timber Stand Improvement.
Project No. 12 – Fire Management.

Initiatives: Cross Reference: Strategy 1.1.4 Initiatives.

Goal 3: Protect, maintain, and restore native communities for plant and animal life, while improving the quality of life and ensuring the continuation of the military mission.

Issue: Little of the native communities that originally occurred at the NASP Complex remain today. The natural communities that remain suggest the diversity of habitats that once covered the NASP Complex. Areas representing the following communities remain in relatively small patches within the NASP Complex: wet prairie, estuarine tidal marsh, scrub, mesic flatwoods, scrubby flatwoods, wet flatwoods, beach dune, baygall, blackwater stream, depression marsh, floodplain swamp, and seepage slope areas (see Section 3.8.1). These remaining natural communities provide good quality habitat for both plant and animal life and should be protected and enhanced.

Often, nuisance wildlife species such as rodents and some birds become overpopulated or congregate in areas creating a threat to human health and/or the military mission. In such cases, these wildlife species must be controlled to prevent problems. To protect, maintain, and restore native communities for plant and animal life, while preventing nuisance wildlife from negatively impacting quality of life and the military mission, the NASP Complex needs to implement programs to address the following objectives:

Objective 3.1: Maintain the ecological integrity of wetland and upland communities for the protection of native plant and animal species, including numerous federally and state listed species.

Objective 3.2: Preserve and protect threatened and endangered species and species of special concern to ensure no reduction in species numbers or population sizes.

Objective 3.3: Control nuisance wildlife and wildlife diseases that may adversely affect human health or welfare, the health of the ecosystem, and/or the military mission.

Objective 3.1: Maintain the ecological integrity of wetland and upland communities for the protection of native plant and animal species, including numerous federally and state listed species.

Strategy 3.1.1: By August 2002, the NASP Complex will establish a habitat development and protection program using prescribed burns and/or thinnings to improve habitat quality, reduce the potential for wildfires, control diseases and insect pests, and ensure the continuation of fire-dependent plant and wildlife communities.

Projects: Project No. 15 – Species Protection and Habitat Development; see Appendix A.
Project No. 12 - Fire Management; see Appendix A.
Project No. 9 - Forest Product Sales; see Appendix A.

Initiatives:

- (1) The NASP Complex will, in consultation with foresters and wildlife biologists from SOUTHDIV's LMD, as well as federal, state, and county wildlife biologists and foresters, prepare harvesting and prescribed burn prescriptions using existing data from the FMIS.
 - Develop and implement a prescribed burn regime that will adequately address safety and smoke concerns. Burns will be conducted by trained personnel. The prescribed burn schedule may be adjusted to accommodate fuel-reduction burns and site safety constraints.
- (2) Certify additional personnel in prescribed burning and wildland fire fighting.
Cross Reference: Strategy 2.1.1 (2) (3).
- (3) Review management recommendations outlined in the rare plant, rare vertebrate, and natural community surveys conducted in 1997 by FNAI (see Section 2.5.6).
- (4) Review findings of plant survey (for *Chrysopsis godfreyi* and *Polygonella macrophylla*) performed in 1996 by FNAI (see Section 2.5.6).
- (5) Seek additional management suggestions from foresters, fish and wildlife biologists, and soil conservationists from SOUTHDIV's LMD, as well as federal, state, and county wildlife biologists, foresters, and land managers.

Strategy 3.1.2: Continue biological monitoring program and rare, threatened and endangered species surveys, and implement programs to enhance wildlife habitat.

Projects: Project No. 3 – Biological Monitoring; see Appendix A.

Initiatives: Cross References:

- Objective 1.1 – wetland buffers, stormwater runoff, soil erosion, and pesticide and fertilizer use;

- Objective 1.2 – invasive and exotic species control;
- Objective 1.3 – 100-year floodplain;
- Objective 1.4 – land management and land use decisions;
- Objective 1.5 – shoreline protection; and
- Objective 1.6 – environmentally beneficial landscaping practices.

Strategy 3.1.3: By June 2003, the NASP Complex will revise and implement the Habitat Conservation Plan (HCP) for A. C. Read Golf Course.

Projects: Project No. 6 - Golf Course Habitat Conservation Plan; see Appendix A.

Initiatives:

- (1) Consult the Francis M. Weston Chapter of the National Audubon Society on the implementation of the HCP.
- (2) Train and educate grounds maintenance personnel on the principles illustrated in the HCP.

Objective 3.2: Preserve and protect threatened and endangered species, and species of special concern, to prevent reduction of individuals or populations.

Strategy 3.2.1: By 2005, the NASP Complex will have completed surveys for neotropical migratory birds. In addition, the NASP Complex will have updated rare, threatened, and endangered species surveys.

Projects: Project No. 13 – Biological Monitoring; see Appendix A.
Projects No. 14 – Neotropical Migratory Bird Survey; see Appendix A.

Initiatives:

- (1) Contract a private firm to conduct the surveys; or
- (2) Develop a team of experts from within the DoN with sufficient technical knowledge to conduct the surveys.
- (3) Pursue services provided for in cooperative agreements between the NASP Complex and the USFWS, the FFWCC, and/or TNC.

Strategy 3.2.2: By 2004, the NASP Complex will implement programs and activities for the protection and enhancement of habitat for threatened and endangered animal and plant species.

Projects: Project No. 12 – Fire Management; see Appendix A.

Project No. 10 – Timber Stand Improvement; see Appendix A.

Project No. 1 – Wetlands Management; see Appendix A.

Project No. 2 – Invasive and Exotic Species Control; see Appendix A.

Project No. 4 – Establish Shoreline Vegetation; see Appendix A.

Initiatives:

(1) Cross References:

- Strategy 3.3.1 – Wildlife damage and disease control.
- Strategy 2.2.1 – Forest management practices.
- Strategy 3.2.1 – Rare, threatened, and endangered species surveys.
- Strategy 1.6.3 – Urban forestry.

(2) The NASP Complex will use FFWCC guidelines for the protection of listed species from proposed development or land clearing impacts. The NASP Complex will consult with FFWCC, USFWS, and/or SOUTHDIV's wildlife biologists to implement this initiative.

- The habitat management plan will be developed subsequent to the surveys addressed in Strategy 3.2.1. Funding for the habitat management plan will be identified in an update of this INRMP.

(3) Use volunteers (e.g. Scout troops, SCA) for implementation/construction of habitat enhancement projects.

(4) The NASP Complex will institute wildlife education and stewardship programs. Cross References:

- Strategy 5.3.1 – NASP Complex personnel education and participation.
- Strategy 5.3.1 – Training for contract and NASP Complex-employed maintenance personnel.
- Strategy 5.3.1 – Citizen education and participation.

(5) Work with adjacent land-owning agencies (e.g., GINS) to minimize impacts (e.g., disorientation) to nesting and hatchling sea turtles caused by outdoor lighting at NASP.

Objective 3.3: Control nuisance wildlife and wildlife diseases that may adversely affect human health or welfare, the health of the ecosystem, and/or the military mission.

Strategy 3.3.1: The NASP Complex will continue to monitor the health and size of animal populations, and control populations as needed.

Projects:

Project No. 16 - Nuisance Wildlife Management; see Appendix A;

Project No. 23 – Natural Resources Training; see Appendix A.

Project No. 17 – BASH Plan Management and Revision; see Appendix A.

- Initiatives:**
- (1) The NASP Complex will establish an awareness program to educate the public on indicators of wildlife population problems and diseases. NASP Complex will use pamphlets, flyers, and command units to disseminate information. Cross Reference: Section 5.3.2.
 - (2) Continue to use IPM techniques in the Pest Management Program and emphasize the use of pesticides with low toxicity and low application rates.
 - (3) Repair perimeter fence at NASP, and develop management strategies for clear zones to keep deer from interfering with flight operations.

Strategy 3.3.2: By June 2004, the NASP Complex will have revised its BASH Plan and begun implementing grounds maintenance practices consistent with the BASH Plan.

Projects: Project No. 17 – BASH Plan Management and Revision; see Appendix A.

- Initiatives:**
- (1) Educate grounds-maintenance personnel on practices that will minimize BASH-related incidents.
 - (2) Ensure that the grounds maintenance personnel receive a copy of the BASH plan and are aware of the locations in which to manage in accordance with the plan.

Strategy 3.3.3: Cross Reference – Strategy 1.1.3 (Pest Management Program)

Projects: None.

Initiatives: Cross Reference - Strategy 1.1.3 (1) (2) (3) (5) (6) (7).

Goal 4: Provide facilities and develop policies that allow for recreational and educational uses of natural resources, and result in positive effects to these natural resources while improving the quality of life.

Issue: The SAIA requires that military Installations evaluate the potential for providing outdoor recreational resources to the general public. Current access to the NASP Complex's existing recreational resources is limited to Installation DoD civilians, uniformed military personnel and dependents, and retired military personnel. However, the general public is allowed access to several natural and cultural resources at the NASP Complex. The CO authorizes access for educational and outdoor natural resources recreational activities consistent with the military mission and security levels. Currently, public access is granted for NPS Areas; cultural resources areas such as the Presidio Santa Maria de Galvé and the Pensacola

Lighthouse; the Sunec-ke Nature Trail; Bayou Grande Nature Trail; Trout Point Nature Trail at NASP; and the Saufley Field Nature Trail. In addition, the public has limited access to the MWR jogging/fitness trail and to Bayou Grande and Saufley Field primitive camping areas, on a reservation basis. The following objective was developed to address Goal 4.

Objective 4.1: To develop additional recreational facilities and trails and/or interpretive centers to support present and future natural resources-based outdoor recreation at the NASP Complex.

Strategy 4.1.1: By 2003, the NRM will develop baseline information pertaining to present usage of natural resources-based outdoor recreation activities.

Projects: None.

Initiatives:

- (1) Monitor existing use of outdoor recreational facilities and trails by placing sign-in sheets at convenient locations.
- (2) Survey base personnel to determine types and locations of desired natural resources-based outdoor recreational activities.

Strategy 4.1.2: The NASP Complex will continue to develop recreational trails and/or interpretive centers in areas exhibiting unique cultural, natural, historical, or archeological resources.

Projects: Projects No. 18 – Interpretive Nature Trails.

Initiatives:

- (1) Use GIS data coverages for preliminary site assessments. Cross Reference: Strategy 5.2.3.
- (2) Use volunteers and interested Installation personnel for construction of facilities. Cross References: Strategy 5.3.4.
- (3) Identify potential natural resources conflicts that could arise from increased outdoor recreational facilities.
- (4) Investigate facility use agreements with other providers of educational, cultural, and recreational opportunities in the area.
- (5) Review issues that currently prohibit public access.
- (6) Identify the types of outdoor recreational and educational opportunities compatible with the NASP Complex's mission.

Strategy 4.1.3: Expand, improve, and provide additional facilities for outdoor recreational opportunities.

Projects: Projects No. 18 – Interpretive Nature Trails.
Project No. 19 - Primitive Camping.
Project No. 20 – Orienteering.
Project No. 21 – Recreational Fishing, see Appendix A.

Initiatives: (1) Cross Reference: Section 5.4, Longterm Management.
(2) Revise fishing and hunting instructions to include all properties of the NASP Complex. Instructions should state that hunting is prohibited at the NASP Complex.

Goal 5: Protect and conserve the ecological value and diversity of natural resources by fostering knowledge of, and participation in, adaptive ecosystem management.

Issue: Existing Installation programs and plans for maintaining and managing natural resources within the NASP Complex do not currently consider the inter-relationships among resources on the Installation, as well as those regionally. Instead, existing programs and plans have typically focused on the management of individual resources in accordance with federal or state laws.

Ecosystem management cannot be accomplished solely through the implementation of programs and plans focused on individual resources. A coordinated effort among all programs and personnel from tenant commands, as well as decision-making authorities on the Installations, is necessary to protect the interdependent components of communities that define an ecosystem. The coordinated effort will address the consequences of actions on related resources, and will resolve conflicts between competing programs and plans for use of the Installation's natural resources.

Ecosystem management is a holistic, adaptive management concept that transcends human-made boundaries both internal and external to the NASP Complex. Management for a sustainable ecosystem requires awareness, education and training, and responsible participation of all individuals potentially affecting the ecosystem, as well as adjustments in management principles and practices to respond to new knowledge and dynamic conditions. To participate in adaptive ecosystem management, the NASP Complex needs to implement programs to meet the following objectives:

Objective 5.1: Provide adequate staffing, equipment, technology, and training for the Natural Resources Program to ensure proper implementation of this INRMP;

Objective 5.2: Incorporate the concept of ecosystem management into all planning and management processes;

Objective 5.3: Implement training, education, and stewardship initiatives for ecosystem management; and

Objective 5.4: Establish a planning team to review and update the INRMP in accordance with OPNAVINST 5090.1B 22-4.1[b].

Objective 5.1: Provide adequate staffing, equipment, technology, and training to the Natural Resources Program to ensure proper implementation of this INRMP.

The NRM is unable to conduct the level of management required at the NASP Complex due to inadequate staffing and resources. Non-compliance with laws and instructions, such as the Sikes Act, could lead to violation of federal laws such as NEPA, CWA, and ESA.

Strategy 5.1.1: By September 2001, help resolve inadequate staffing by converting the temporary Forester position in the Natural Resources Program to a permanent position.

Projects: Project No. 22 - Natural Resources Staffing.

Initiatives: None.

Strategy 5.1.2: Continually verify that natural resources personnel obtain proper training/certifications for the following:

- Fire Management;
- Threatened and Endangered Species Management;
- Wetlands Management;
- Ecosystem Management;
- Technology (GIS/GPS);
- Natural Resources Legal Requirements;
- Forest Management;
- Department of Transportation (DOT) Requirements;
- HW Training;
- Safety Training;
- Pest Management;

Projects: Project No. 23 – Natural Resources Training.

Initiatives: (1) Identify training programs.
(2) Cross Reference: Strategy 2.1.1 (2).

Objective 5.2: Incorporate the concept of ecosystem management into all planning and management processes.

Strategy 5.2.1: By September 2003, the NASP Complex should form a review board within the Facilities Maintenance Department to review all projects that potentially affect natural resources, including soil and water quality. A representative of the Natural Resources Program should be appointed to the review board.

Projects: None.

Initiatives: Brief the CO on the importance of the formation of a review board to ensure that natural resources are considered when making planning decisions. Cross References: Military Mission discussions throughout Section 5.

Strategy 5.2.2: By January 2002, integrate the management concepts of the INRMP into all working programs and department plans (i.e. HCP, PMP, Urban Forestry Plan, and Grounds Maintenance Plan).

Projects: Project No. 23 - Natural Resources Training; see Appendix A.
Project No. 26 - Natural Resources Technology; see Appendix A.

Initiatives: By August 2001, develop a working team to integrate the concepts of the INRMP into the HCP, PMP, Urban Forestry Plan, and Grounds Maintenance Plan. The team will consist of a representative from each department who is tasked with the responsibility of implementing programs, plans, or policies related to ecosystem management. The NRM should be involved in the team selection process, and the team should meet monthly until all programs are integrated.

Strategy 5.2.3: By 2003, the NASP Complex will use Computer-Aided Drafting and GIS for construction, engineering, and natural resources mapping. The NASP Complex will build and/or acquire appropriate Installation- and region-wide data coverages. The GIS will allow environmental professionals to produce custom maps for preliminary environmental site assessments and to facilitate analysis of environmental issues.

Projects: Project No. 26 – Natural Resources Technology.

Initiatives: Compile GIS data coverages and maintain and update data coverages, as needed. GIS data coverages should include:

- Wetlands, waterbodies, water courses, and appropriate buffers;
- Forest stands;

- Natural communities;
- Undisturbed and undeveloped 100-year floodplain;
- Military constraint areas;
- Map soil units and areas where soil type presents a threat of erosion;
- Populations and habitats of endangered and threatened species and species of special concern;
- HW sites;
- Land use;
- Infrastructure and utilities;
- NASP Complex boundaries and buildings;
- Roads;
- Cultural, natural, historical, or archeological resources;
- Surface water quality monitoring stations;
- Stormwater outfalls and monitoring stations; and
- Shoreline areas, submerged aquatic vegetation, and essential fish habitat;

Strategy 5.2.4: By January 2002, the NASP Complex will ensure that all cooperative agreements, memoranda, or other agreements between the Installation and federal and state agencies that oversee and regulate natural resources protection, are current, and that such agreements have been established with all necessary agencies.

Projects: None.

Initiatives: It will be the responsibility of the NRM to ensure that the NASP Complex has up-to-date agreements. The NRM will consult with foresters and fish and wildlife biologists from SOUTHDIR's LMD, as well as with federal, state, and county wildlife biologists, foresters, and land managers for assistance. The NRM will also consult with Installation commands and departments, such as MWR.

Objective 5.3: Implement training, education, and stewardship initiatives for ecosystem management.

Strategy 5.3.1: By January 2002, the NASP Complex will establish an ecosystem management awareness and training/education program available to all interested NASP Complex personnel. In addition, the NASP Complex will implement a technical education and training program for all contract and Installation personnel involved in activities on the Installation that may directly or indirectly affect ecosystem management success. Individuals required to attend will be those involved in activities with, or associated with, departments including, but not limited to:

stormwater management; landscaping; forest management; HW response; MWR; Public Works; volunteers; operations; and trainers.

Projects: Project No. 23 - Natural Resources Training; see Appendix A.
Project No. 26 - Natural Resources Technology; see Appendix A.

Initiatives:

- (1) For program development, enlist the services of foresters, fish and wildlife biologists, and soil conservationists from SOUTHDIR's LMD, as well as federal, state, and county wildlife biologists, foresters, and land managers.
- (2) Encourage participation by providing information about Installation natural resources and communicating each individual's important contributions to ensuring a viable ecosystem. Use pamphlets, flyers, command units, and the internet to disseminate information. Initiate an annual environmental awareness achievement award for project suggestions and participation.
- (3) Offer hands-on training and individual participation in activities to better demonstrate the concept, application, and importance of ecosystem management. Cross References: Activities such as landscaping (Section 5.1.5), wetland enhancement (Section 5.1.1), prescribed burning (5.2.1), urban forestry (Section 5.1.7), and habitat improvements (Section 5.3.2).
- (4) Brief the CO on the importance of training and education to ensure cooperation among participating departments. Communicate to the CO the importance of all contract and Installation personnel receiving education in relevant environmental laws, regulations, directives, and mandates that have the potential to affect the military mission. The CO should require, at a minimum, that one representative from each of the tenant commands participate in the training.
- (5) Encourage participants in the technical education and training program to conduct training and education classes for the tenant commands and departments they represent.
- (6) Provide information about natural resources at the NASP Complex to visiting commands (e.g. training groups) prior to the command initiating actions.

Strategy 5.3.2: The NASP Complex will continue to implement programs and initiatives that foster citizen participation in ecosystem education and stewardship.

Projects: Project No. 18 – Interpretive Nature Trails; see Appendix A.
Project No. 27 – Natural Resources Public Relations; see Appendix A.

Initiatives:

- (1) Encourage the use of volunteer groups (e.g. Scout troops, SCA) on the Installation. Offer hands-on training or activity participation to better demonstrate the concept, application, and importance of ecosystem management. Cross References: Strategy 5.3.1 and activities such as landscaping (Section 5.1.5), wetland enhancement (Section 5.1.1), prescribed

burning (5.2.1), urban forestry (Section 5.1.7), and habitat improvements (Section 5.3.1).

- (2) Actively pursue suggestions from NASP Complex personnel for environmental enhancement projects. Initiate an annual environmental awareness achievement award for project suggestions and participation.
- (3) Continue participation in Earth Day activities, field trips, and other environmental stewardship opportunities.
- (4) Maintain “Tree City USA” designation.
- (5) Pursue participation in the Coastal America Program.
- (6) Participate in regional ecosystem management initiatives.
- (7) Continue to develop a Watchable Wildlife Program.

Objective 5.4: Establish a planning team to review and update the INRMP in accordance with OPNAVINST5090.1B 22-4.1[b].

The INRMP is intended as a dynamic, evolving planning document; updates are required to ensure compliance with regulations and to initiate requests for project funding. The following strategy has been developed to accomplish this objective.

Strategy 5.4.1: By 2005, the NASP Complex will contract a private firm, or develop a team of experts with sufficient technical knowledge, to evaluate the effectiveness of INRMP implementation and to recommend improvements.

Projects: Project No. 28 – INRMP Update and Revision.

Initiatives: Review NASP Complex staffing, including assistance from SOUTHDIV’s LMD, and federal, state, and county agencies, to identify whether there are adequate staffing and expertise to update the INRMP. If not, list private contracting as a compliance project for implementation of Project 28. Cross Reference: Section 1.5.3 for updating compliance.

This section discusses ecosystem management at the NASP Complex by dividing ecosystem management into four components: land management; forestry; fish and wildlife; and outdoor recreation. These components are further divided into sub-components; for example, land management addresses wetlands, invasive and exotic species, soil conservation and erosion control, stormwater and water quality control, landscaping and grounds maintenance, floodplain management, and urban forestry.

Sub-components are defined in this section. For each sub-component, this section discusses the issues, long-term management of the issues, the relationship of issues to ecosystem management within the NASP Complex, the relationships among ecosystem management sub-components, legal requirements, and sources for additional management information. This section also correlates the goals, objectives, and strategies (see Section 4) pertaining to ecosystem management issues. In addition, Section 5.5 discusses land impact guidelines.

5.1 Land Management

Land management is the development of programs and techniques for managing lands. The land management issues of this INRMP are wetlands, invasive and exotic species, soil conservation and erosion control, stormwater, landscaping and grounds maintenance, floodplains protection, and urban forestry. Agricultural outleasing does not occur at the NASP Complex, and, therefore, is not addressed in this INRMP. Opportunities for outleasing may be pursued in the future as market and other conditions permit. Currently, the majority of land area at the NASP



Complex is within the urban area, forested and/or preserved for wildlife habitat, or used for outdoor recreation.

The land management issues contained within this plan are not intended for directing land use activity (i.e. what buildings or activities should go where), but rather to provide managers with directions and general techniques (e.g. regarding soil conservation, stormwater management) to protect and enhance the natural environment, while continuing to provide for the needs associated with the military mission of the NASP Complex.

5.1.1 Wetlands

In general terms, wetlands are lands on which water covers the soil or is present either at or near the surface of the soil or within the root zone all year or for varying periods of time during the year, including during the growing season. The USACE (Federal Register, Section 328.3(b), 1991) and the EPA (Federal Register, Section 230.4(t), 1991) jointly define wetlands as "...those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (USACE 1982). The USACE definition relies on three key parameters: hydrology; soil; and vegetation, which must all occur and meet the defined characteristics in order for a location to be classified as a wetland. The FDEP's methodology for determining wetland boundaries is also based on the presence of hydrophytic vegetation, hydric soil characteristics, and hydrologic indicators.

The NASP Complex has 950.4 acres of wetland areas including 249.6 acres at NAS Pensacola, 600 acres at NOLF Bronson, 100.3 acres at Saufley Field, and 0.5 acre at Corry Station (see figures 3-1, 3-2, 3-3, and 3-4). Managed ponds comprise the open water wetlands at the Complex. Some of the wetlands within the NASP Complex have been hydrologically altered by past ditching.

Issues

The functions of wetlands within the NASP Complex include providing habitat for birds, fish, other animals, and plants; storing and purifying water; and providing open space and aesthetic value. Because of development constraints within the NASP Complex (e.g. limited lands, archaeological sites) and the need for future development of lands, the NASP Complex will be required to balance the need for protecting the Complex's wetlands with supporting the military mission.

Goals, Objectives, Strategies, and/or Projects

Table 5-1 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to wetlands issues.

Table 5-1			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO WETLANDS			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.1	Stormwater management.
1	1.1	1.1.2	Soil erosion control management.
1	1.1	1.1.3	Pest Management Program.
1	1.1	1.1.4	Wetlands.
2	2.2	2.2.1	Effects of forest management practices on wetlands.
3	3.1	3.1.1	Maintenance of fire -dependent wetland communities.
3	3.1	3.2.2	Protection of wetland habitats supporting threatened and endangered species.

Long-Term Management

The long-term management concept for the protection and enhancement of wetlands on the NASP Complex will include DoN's policy of *no net loss* of wetlands, and will be to maintain and/or develop vegetative buffers with widths of 50 feet around wetland areas, except where sufficient acreage is not available as determined by the NRM. The NASP Complex will increase the width of existing vegetative buffers that are less than 50 feet wide to a minimum of 50 feet, providing that buffer acreage is available. Buffers will not be removed if any portion of the buffer is less than 50 feet wide. The NASP Complex will not remove buffer vegetation when the result would be a buffer width less than 50 feet. A minimum buffer width of 50 feet is required to provide the basic physical and chemical buffering needed to reduce siltation into the wetland, retain the natural attenuation and filtering capacity of the wetland, and maintain the wetland's biological communities.

In areas where the acreage available for buffering is not sufficient, or greater protection is needed, other appropriate measures will be employed. These protective measures include: (1) redirecting, discouraging, or prohibiting pedestrian and pet access to the wetland or buffer area by the placement of hedges, fences, or signs; and (2) planting vegetated filter strips, swaths of land planted with grasses and trees, to intercept uniform sheet flows of runoff before the runoff reaches a wetland. The NASP Complex will use these methods individually or in combination along the perimeters of wetlands.

In addition to creating and maintaining buffers to protect wetlands and subsequently water quality, the NASP Complex will manage stormwater (see Section 5.1.4) and the use of pesticides and herbicides (see Sections 5.1.5 and 5.2.1) to further protect water quality.

Environmental Considerations Relative to Management Practices

None.

Applicability of Other Management Issues and NASP Complex Programs

The following management issues, programs, and actions are directly or indirectly related to the management of wetland areas and will be consulted for additional management information or provided as additional training and education:

- Invasive species – Section 5.1.2 – the use of pesticides within wetlands;
- Stormwater runoff – Section 5.1.4 – the use of wetlands for stormwater runoff and impacts of stormwater runoff to wetlands;
- Silvicultural activities – Section 5.2.1 – prescribed burns within wetlands and fire breaks adjacent to wetlands;
- Outdoor recreation – Section 5.4 – restricted uses within wetlands;
- Urban forestry – Section 5.1.7 – use of urban forestry practices in developing buffers;
- Landscaping and grounds maintenance– Section 5.1.5 – use of xeriscape principles in developing buffers;
- Soil conservation and erosion control– Section 5.1.3 - impacts of soil erosion on wetland quality;
- Wildlife habitat enhancement and threatened and endangered species - Section 5.3.2 - management of wetlands as wildlife habitat;
- The wetland buffer concept will be integrated into the NASP Complex grounds maintenance program where practicable;
- Establishment of a shoreline buffer along undeveloped areas adjacent to Bayou Grande, Pensacola Bay, Big Lagoon, and Perdido Bay. A natural vegetated buffer will be maintained from the normal high water line 50 feet landward, where feasible;
- Establishment of a shoreline buffer along developed shorelines, where feasible;

- Offer hands-on training or individual participation in wetland buffer development to better demonstrate the concept, application, and importance of wetland protection; and
- Using volunteer groups, including local Scout troops and interested Installation personnel, for buffer and wetland enhancement.

Ecosystem Management

Wetlands management is an essential component of ecosystem management because proper management will preserve, enhance, and create habitat for a variety of wildlife species, while providing aesthetic and educational values. Changes to hydrology, geochemistry, substrate, or species composition may impair the ability of a wetland to function properly. Such alterations can affect the ability of the wetland to filter excess sedimentation and nutrients from surface water, which can result in deteriorated surface water quality. Vegetative buffers between wetland and upland vegetative communities will help maintain and improve water quality by filtering sediments and other pollutants from runoff prior to discharge into the wetland. Vegetative buffers also will provide habitat for a diversity of wetland and upland species.

Military Mission

Installation and management activities that are detrimental to wetland functions (e.g. storage and purification of water) at the NASP Complex can potentially affect the military mission. For example, because wetland systems on the Installations provide water storage and purification prior to discharge into Pensacola Bay, actions adversely affecting the quality of water discharging into the bay may have to be discontinued by order from FDEP. In addition, wetlands may prevent flooding.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Wetland Areas

Federal Water Pollution Control Act: Section 404, as amended by the Clean Water Act of 1977, 33 U.S.C. 1251, prohibits the discharge of dredged or filled materials into waters of the United States, including wetlands, without first obtaining a permit from USACE (Section 404 of the CWA).

Executive Order 11990, 24 May 1977, as amended, requires government agencies, in carrying out agency actions and programs affecting land use, to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

Clean Water Act: Section 401 Water Quality Certification, 1986, 33 U.S.C. 1341, requires that States certify compliance of federal permits or licenses with state water quality requirements and other applicable state laws. Under Section 401, States have authority to review any federal permit or license that may result in a discharge to wetlands or other waters under State jurisdiction to ensure that the actions would be consistent with the State's water quality requirements.

Executive Order 13112, 3 February 1999, requires executive agencies to restrict the introduction of exotic organisms into natural ecosystems.

OPNAVINST 5090.1B, par 22-4.3(a) discusses natural resources management relating to wetland management.

Coastal Zone Management Act, 16 U.S.C. 1451, Establishes goals and a mechanism for States to control use and development of their coastal zone. Authorizes States to administer approved coastal non-point source pollution programs.

Additional Sources of Information

Technical Reports/Publications:

Wetland Creation and Restoration: The Status of the Science by Jon A. Kusler and Mary E. Kentula; published in 1990 by Island Press.

Telephone Contacts:

USFWS, Regional Wetland Coordinator - (404) 679-7128

FDEP, Stormwater Treatment – (850) 595-8320

USACE, Pensacola Regulatory Office- (850) 433-3510

The Center for Wetlands (University of Florida) - (352) 392-2424

The Wildlife Society - (301) 897-9770

Northwest Florida Water Management District (NFWFMD)- (850) 539-5999

Internet Addresses:

Weed Management: <http://tncweeds.ucdavis.edu>

Florida Exotic Pest Plant Council: www.fleppc.org

Weed issues: www.ces.uga.edu/pubs/pubsubj.html#weeds

Invasive Plant Management: <http://refuges.fws.gov/FICMNEWFiles/NatlWeedStrategyTOC.html>

FDEP : Division of Water Facilities: www2.dep.state.fl.us/water/ :

FDEP: Bureau of Invasive Plant Management: www.dep.state.fl.us/stland/bapm :

University of Florida: Center for Aquatic and Invasive Plants:

Institute of Food and Agricultural Sciences: <http://aquat1.ifas.ufl.edu/welcome.html>

Florida Native Plants Online: www.floridaplants.com

Florida Native Plant Society: www.flmnh.ufl.edu/fnps/fnps.htm

EPA: Office of Water, Wetlands, Oceans and Watersheds: www.epa.gov/owow/

Environmental Law Institute: www.igc.apc.org/eli/

Center for Marine Conservation: <http://www.cmc-ocean.org/>

5.1.2 Invasive, Exotic, and Noxious Species

Species can be categorized as exotic, native, exotic and invasive, and/or native and invasive. An exotic species is defined as a non-indigenous (non-native) species that was either purposefully or accidentally introduced into an area outside its natural range. A native species in Florida is defined as a species already occurring at the time of European contact in 1500 (Florida Exotic Pest Council 1999). Invasive species are alien species whose introduction does, or is likely to, cause economic or environmental harm or harm to human health. In natural areas, the definition of invasive species is expanded to include aggressive plants that produce a significant change in terms of composition, structure, or ecosystem functions (Cronk and Fuller 1995). Executive Order 13112, Invasive Species, of February 3, 1999 requires executive agents to restrict the introduction of exotic organisms into natural ecosystems.

The Federal Noxious Weed Act of 1974 (7 U.S.C. 2801-2814) provides for the control and eradication of noxious weeds and their regulation in interstate and foreign commerce. It defines noxious weeds as “any living stage (including but not limited to, seeds and reproductive parts) of any parasitic or other plant of a kind, or subdivision of a kind, which is of foreign origin, is new to or not widely prevalent in the United States, and can directly or indirectly injure crops, other useful plants, livestock, or poultry or other interests of agriculture, including irrigation, or navigation, or the fish and wildlife resources of the United States or the public health, and includes kudzu (*Pueraria lobata* Dc)” (7 U.S.C. 2802 (c)).

The following species occur on the NASP Complex and are considered exotic and invasive:

- Cogon grass (*Imperata cylindrica*) is a fast-growing perennial grass that thrives in areas of minimal tillage such as lawns and roadsides. Roots and rhizomes are remarkably

resistant to fire. This grass is present along several roadways and disturbed areas throughout the NASP Complex.

- Mimosa (*Albizia julibrissin*), a native of Asia, is an ornamental that has escaped and become naturalized in the southeastern United States. It is found mainly along roadsides, disturbed areas, and edges of forests.
- Japanese climbing fern (*Lygodium japonicum*) is generally found in damp, usually disturbed areas. The plant tolerates both shade and sun and can be found along the edges of swamps, marshes, creeks, and lakes, as well as in upland woodlands. It forms a tangled mass over groundcover and shrubs, eliminating understory vegetation.
- Chinese tallow or popcorn tree (*Sapium sebiferum*) tends to take over large areas, mainly areas with wet soils, but can thrive in upland areas as well. It can survive in both poorly drained freshwater and saline soils. It has the capacity to dominate wetland areas.
- Camphor tree (*Cinnamomum camphora*) generally occurs in drier disturbed areas, including scrub habitat, which is the habitat of many threatened and endangered species.
- Chinese privet (*Ligustrum sinense*) generally occurs on open disturbed sites and is difficult to control in wetland areas.
- Bladder-pod (*Sesbania vesicaria*) is present on the spoil island just north of Magazine Point. This weedy exotic plant should be eradicated to insure future openness of the spoil area for shore bird nesting (FNAI 1997a,b,c).
- Kudzu (*Pueraria lobata*) is a trailing or climbing, semi-woody vine introduced into this country from Japan. Kudzu has been used as an ornamental, for erosion control, and as a livestock forage.
- Common reed (*Phragmites australis*) thrives in shallow water and wet soils. It has spread throughout Gulf and Atlantic coast marshes in the United States in the past 30 years.
- Misc. aquatic weeds (*Eichhornia spp.* and *Alternanthera spp.*) can degrade water quality and dramatically alter native plant and animal communities.
- Mole crickets (*Scapteriscus borellii*) damage turf and pasture grasses mainly by tunneling (because it is largely carnivorous and feeds on soil-inhabiting insects).
- Fire ants (*Solenopsis spp.*) include many opportunistic ant species, both exotic and native. Fire ants are present throughout the NASP Complex and have the ability to interfere with landing operations.
- Coyotes (*Canis latrans*) and armadillos (*Dasypus novemcinctus*) occur at the NASP Complex and are considered nuisance wildlife species (see Section 5.3.3).

Issue

Invasive species have the potential to interfere with military and recreational activities, wildlife habitats, forests, wetlands, and other natural areas. Invasive species often interfere with ecosystem functions.

Goals, Objectives, Strategies, and/or Projects

Table 5-2 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to invasive and exotic species issues.

Table 5-2			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO INVASIVE AND EXOTIC SPECIES			
Goals	Objectives	Strategies	Comments
1	1.2	1.2.1	Removal of invasive and exotic species.
1	1.6	1.6.1	Landscape management.
1	1.6	1.6.2	Xeriscaping.
1	1.6	1.6.3	Urban forestry.
2	2.1	2.1.1	Silvicultural activities to control invasive and exotic species.
3	3.1	3.1.1	Habitat development and protection.
3	3.1	3.1.3	Golf Course Habitat Conservation Plan.
5	5.3	5.3.1	Ecosystem management awareness and training/education program.
5	5.3	5.3.2	Citizen participation in ecosystem management and stewardship.

Long-Term Management

Invasive and exotic species will be managed through the removal of the species and restrictions on the introduction of the species to the Installation in accordance with Executive Order 13112. The Complex will survey the extent of invasive and exotic species on all properties (see Project No. 2a, Appendix A), develop an invasive and exotic species control plan that will identify and describe invasive and exotic species (see Project No. 2a, Appendix A), and schedule removal. This plan will be implemented to control invasive and exotic species to acceptable levels (see Project

No. 2b, Appendix A). In addition, the NRM will screen all lists of landscaping plants proposed for the NASP Complex to ensure invasive and exotic species are not used.

Prior to the use of a Federal Insecticide, Fungicide, and Rodenticide Act- (FIFRA-) regulated pesticides at the NASP Complex, the Installation's NRM will contact the ABD of SOUTHDIIV (843-820-7140) and the FDACS Pesticide Division (850-487-2130), for information regarding approved pesticides, including the location of use, amount, and concentrations, as well as treatment methods (e.g. basal-bark, cut-stump, cut-surface, foliar). The FDEP Bureau of Invasive Plant Management (850-488-5631) issues licenses that may be required for special use pesticides. The Complex will also consider the applicability of burning or hand clearing in combination with pesticides, as well as non-pesticide removal methods alone.

The use of pesticides for removal of invasive and exotic species and pests will be conducted in accordance with federal and state laws regulating the use of pesticides. According to the EPA, a "pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Pests can be insects, mice and other animals, unwanted plants (weeds), fungi, or microorganisms like bacteria and viruses; the term pesticide also applies to herbicides, fungicides, and various other substances used to control pests" (<http://www.epa.gov/opp00001/whatis.htm>). Under the FIFRA, 7 U.S.C. 136, pesticides are registered at the federal level and by individual states. Therefore, a particular pesticide product that is federally registered by the EPA is not legal for use until it is also registered by the individual state. FIFRA allows individual state registrations to be more restrictive than federal registrations, but not less so.

To ensure that the application of pesticides does not contaminate surface waters and/or inadvertently affect flora or fauna, pesticides will be applied by skilled, DoD-certified workers and according to label instructions. Careful prescription of the type and amount of chemical to be applied and the use of buffer areas around surface waters will also help prevent misdirected application or deposition. The NASP Complex will use pesticides with lower toxicity and apply them at rates below those specified on the label, when it is believed that such modifications can adequately address the problem. The Installation will evaluate the effectiveness of the lower rates and toxicity, and will apply pesticides in accordance with label instructions if the lower rate applications are not adequately controlling the problem. The Installation will also consider the applicability of non-pesticide removal methods, which could be implemented through the use of volunteer groups.

Environmental Considerations Relative to Management Practices

Potential impacts to non-target species and water quality during pesticide use.

Applicability of Other Management Issues and NASP Complex Programs

The following management issues, programs, and actions are directly or indirectly related to the management of invasive species, and will be consulted for additional management information or provided as additional training and education:

- Landscaping and grounds maintenance – Section 5.1.5 – native species only;
- Silvicultural activities-Section 5.2.1- herbicide and pesticide application and prescribed burning in forest stands;
- Fisheries – Section 5.3.1 – pesticide use;
- Threatened or endangered species – Section 5.3.2 – pesticide use;
- Wetlands – Section 5.1.1 – pesticide use in or near wetlands;
- Stormwater and water quality control– Section 5.1.4 – pesticide use and stormwater runoff;
- Using volunteer groups, including local Scout troops and interested Installation personnel, for invasive and exotic species removal;
- Invasive species management will be integrated as part of the NASP Complex grounds maintenance program and pest management program.

Ecosystem Management

The management of invasive species is a fundamental component of the ecosystem management concept. Invasive species typically out-reproduce native species, by definition, and have a propensity to spread into unstable or disturbed areas (e.g. highway and utility right-of-ways, site disturbance areas, ponds, and wetland areas). Therefore, the control of invasives and replacement with native species within the NASP Complex is essential for the protection and enhancement of biodiversity, and for the proper functioning of wetlands as water storage and purifying systems.

Military Mission

With their ability to spread virtually unchecked, invasive species have the potential to create hazardous situations when they interfere with infrastructure systems (e.g. along and around roadway intersections and electric distribution lines and substations).

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Invasive Species

Federal Noxious Weed Act of 1974, 7 U.S.C. 2801 et. seq., provides for the control and eradication of noxious weeds and their regulation in interstate and foreign commerce.

Executive Order 13112, 3 February 1999, requires executive agencies to restrict the introduction of exotic organisms into natural ecosystems.

Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. 136, requires that all pesticides, whether for commercial or private use, be applied in accordance with product labeling and that containers are properly disposed of. EPA is responsible under FIFRA for the registration of all pesticide active ingredients used in the United States.

OPNAVINST 6240.4B, 27 August 1998, DoD Pest Management Program, provides the DoN with policies for implementing pest management programs directed against pests that conflict with or adversely affect the mission of the DoD; affect the health and well-being of the DoN personnel and their dependants; attach or damage real property, supplies, or equipment; adversely affect the environment; or are otherwise undesirable.

Federal Plant Pest Act, 7 U.S.C. 150a et seq., regulates the importation and interstate movement of plant pests and authorizes the Secretary of Agriculture to take emergency measures to destroy infected plants or materials.

OPNAVINST 5090.1B, par 22-4.3(f), discusses natural resources management relating to the control of noxious weeds.

Florida Statutes, Chapter 487, the Florida Pesticide Law, regulates the distribution and use of pesticides.

Florida Statutes, Chapter 482, Structural Pest Control Act, requires using pesticides for their intended purpose in accordance with the registered labels or as directed by the EPA.

Florida Statutes, Chapter 369.2, Florida Aquatic Weed Control Act, regulates noxious aquatic weeds on public lands.

Florida Statutes, Chapter 369.252, Invasive Exotic Plant Control, requires a program be established to eradicate or maintain control of the species detrimental to the State's natural environment.

Additional Sources of Information

Telephone Contacts:

TNC Florida Office - (407) 682-3664

ABD of SOUTHDIV - (843)-820-7140

FDACS, Pesticide Division - (850)487-2130)

Internet Addresses:

Weed Management: <http://tncweeds.ucdavis.edu>

Florida Exotic Pest Plant Council: www.fleppc.org

Weed issues: www.ces.uga.edu/pubs/pubsubj.html#weeds

Invasive Plant Management: <http://refuges.fws.gov/FICMNEWFiles/NatlWeedStrategyTOC.html>

University of Florida, Center for Aquatic and Invasive Plants
<http://aquat1.ifas.ufl.edu/welcome.html>

USDA Animal and Plant Health Inspection Service, Plant Protection and Quarantine;
Federal Noxious Weed List of 06/07/99:
<http://aphisweb.aphis.USDA.gov/ppq/bats/fnwsbycat-e.html>

USFWS Invasive Species Program: <http://invasivees.fws.gov>

5.1.3 Soil Conservation and Erosion Control

Erosion is the detachment and movement of soil or rock fragments by water, wind, ice, or gravity.

Issue

Soil erosion can effectively undermine roadways, shoreline facilities, and other military structures, and often results in water quality problems (e.g. increased turbidity). It also increases maintenance costs associated with stormwater facilities. Actions contributing to the susceptibility of the soil to erosion include:

- Pedestrian traffic on grassy areas of low sustainability due to poor soil conditions. This results in a turf of thin grass interspersed with bare sandy areas;
- Excessive and improper mowing activities and practices;
- Human-made alterations to the natural vegetative cover and topography, including: the channeling of water flow (e.g. ditches) which decreases infiltration and increases the quantity and rate of flow; the exposure of soils and increased soil slopes; and/or the creation of impervious surfaces;

- Forestry practices (e.g. prescribed burns, thinning, and reforestation) that expose soils to rainfall and stormwater runoff;
- Wave and wake action along shoreline areas of NASP and BARP; and
- Combination of sandy soils, drought, and rainfall events that occur at the NASP Complex.

Areas at the NASP Complex that are either particularly susceptible to erosion or presently have an erosion problem include: areas adjacent to runways that receive airfield surface runoff; road shoulders; and shorelines. Proper grounds maintenance which emphasizes vigorous growth of vegetation is the best and most economical means of erosion control.

Goals, Objectives, and Strategies

Table 5-3 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to soil conservation and erosion control issues.

Table 5-3			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO SOIL CONSERVATION AND EROSION CONTROL			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.1	Stormwater management.
1	1.1	1.1.2	Soil erosion control.
1	1.5	1.5.1	Shoreline protection.
1	1.6	1.6.1	Landscape management.
1	1.6	1.6.1	Xeriscaping.

Long-Term Management

The long-term management concept for soil conservation is to identify and understand the suitability and sustainability of a soil unit for a proposed action. The USDA NRCS soil surveys may be used to identify the potential applicability and limitations of each soil unit for land use activities. Land uses may include forestry, building construction, recreational, and wildlife habitat. The USDA soil survey for Escambia County, *Soil Survey of Escambia County, Florida* (1960), also provides information about potential erosion hazards; groundwater contamination; productivity of cultivated crops, trees, and grass; and the protection of water quality, wetlands, and wildlife habitat. Soils maps

for Escambia County have been updated (1999) and are available through SSURGO database website (see Additional Sources of Information at the end of this section). An updated Soil Survey of Escambia County, Florida, is being prepared but has not been published to date.

To minimize soil erosion, the NASP Complex will:

- Continue the use of BMPs to control soil erosion. In addition, the NASP Complex will implement the six principles for soil conservation and erosion management presented in Smoot and Smith (1999):
 1. Minimize areas of disturbance,
 2. Stabilize and protect disturbed areas from raindrop and runoff energies as soon as practicable,
 3. Minimize runoff velocities,
 4. Protect disturbed areas from adjacent area runoff,
 5. Retain sediment within construction sites, and
 6. Reduce exposure time;
- Take into account erosion control measures for forest and shoreline areas and for forestry reforestation and timber stand improvement (TSI) actions in determining the need for an SWPPP (see Strategy 1.1.1, Section 4);
- Evaluate areas on the Installation for erosion control problems;
- Reduce mowing and increase grass height and coverage;
- Maintain good ground cover through proper fertilization to prevent weed invasion and erosion;
- Control potential erosion control problems using the following methods:
 1. Use vegetative and structural protective covers (e.g. permanent seeding, groundcover),
 2. Use sediment barriers (e.g. straw bales, silt fence, brush),
 3. Create sediment detention ponds and basins (e.g. sediment traps and basins),
 4. Implement stream and shore bank protection (e.g. riprap),
 5. Construct pervious surface walkways in areas of high pedestrian traffic,
 6. Construct water conveyances (e.g. slope drains, check dam inlet and outlet protection), and

7. Implement temporary construction and road stabilization practices (e.g. placement of stone and geotextile fabrics [Smoot and Smith 1999]).

Environmental Considerations Relative to Management Practices

None.

Applicability of Other Management Issues and Installation Programs

The following management issues, programs, and actions are directly or indirectly related to the management of soil erosion and conservation and will be consulted for additional management information or provided as additional training and education:

- Stormwater and water quality control – Section 5.1.4 – stormwater and sedimentation;
- Silvicultural activities – Section 5.2.1 – erosion control during silvicultural activities such as thinning, firebreak construction, and forest road maintenance;
- Wetlands – Section 5.1.1 – sedimentation of wetlands;
- Landscaping and grounds maintenance - Section 5.1.5 - maintaining ground cover to prevent erosion.

Ecosystem Management

Soil conservation is an essential component of the ecosystem management concept. Soils are particularly susceptible to erosion from uncontrolled stormwater runoff and may discharge into waterbodies from point and nonpoint sources. Sediments in stormwater runoff have the capacity to obstruct drainage infrastructure and to reduce the volume capacity of wetlands, potentially resulting in damaging flood conditions. Turbidity pollution, derived from soil erosion, may also affect surface water quality in adjacent freshwater, estuarine, and marine environments.

Military Mission

Erosion has the potential to undermine roads and runways, which would threaten the military mission. In addition, uncontrolled soil erosion has the potential to increase sediment loading in stormwater runoff, which may increase turbidity and reduce water quality in Bayou Grande, Pensacola Bay, or Perdido Bay. As mentioned in Section 5.1.1 (wetlands issues), actions adversely affecting these waterbodies may result in FDEP action.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Soil Conservation

Soil Conservation Act, 16 U.S.C. 590(a) et seq., provides for soil conservation practices on federal lands.

Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, 33 U.S.C. 1251, regulates the dredging and filling of wetlands and establishes procedures for identifying and regulating nonpoint sources of polluted discharge, including turbidity, into waterways.

Executive Orders 11989 and 12608 close areas to off-road vehicles where soil, wildlife, or other natural resources may be adversely affected.

Executive Order 13112, 3 February 1999, requires executive agencies to restrict the introduction of exotic organisms into natural ecosystems. Vegetative buffers and landscaping to control soil erosion must comply with this executive order.

OPNAVINST 5090.1B, par 22-4.3(d), discusses natural resources management relating to soil conservation management.

Florida Statutes, Chapter 582.05, provides for control and prevention of soil erosion and damage from floodwater and sediments, and for the conservation of soil and water resources.

Additional Sources of Information

Telephone Contacts:

USDA NRCS, Escambia County, Florida- (850) 587-5404

FDEP, Environmental Resources Permitting – (850) 595-8320

Internet Addresses:

University of Tennessee, Knoxville, Water Resources, Civil and Environmental

Engineering <http://www.engr.utk.edu/research/water/erosion/index.html>

SSURGO: <http://www.agnic.org/agdb/ssurgo.html>

USDA NRCS: <http://www.nrcs.usda.gov/>

The National Erosion Research Laboratory: <http://topsoil.nserl.purdue.edu/nserlweb>

5.1.4 Stormwater and Water Quality Control

Stormwater runoff is precipitation that falls onto surfaces such as roofs, streets, the ground, etc., and is not absorbed or retained by that surface, but collects volume and speed and flows off.

Stormwater runoff management addresses measures to reduce stormwater runoff and pollutants in stormwater runoff, and to control discharge from point and nonpoint sources. Nonpoint source pollution refers to the polluting of surface water and groundwater resources by diffuse sources, rather than by single, identifiable point sources. Point and nonpoint source pollutants are commonly associated with land use. These pollutants routinely include sediments from: land disturbance; pesticides and nutrients from urban lawns and landscaping; and oil, grease, heavy metals, and other toxic materials from streets, rooftops, and parking lots. Stormwater runoff is the most common transport mechanism for nonpoint source pollution; the majority of pollutant loading occurs during and immediately after storm events.

Currently, stormwater at NASP is channeled through various-sized gravity piped systems, ditches, and concrete-lined channels that discharge directly into Bayou Grande or Pensacola Bay. There is no stormwater infrastructure at NOLF Bronson. Stormwater at Corry Station flows from roads and parking lots, building roofs, and other impervious surfaces to an underground stormwater sewer system and discharges directly into Jones Creek and Bayou Chico. Stormwater at Saufley Field is channeled by means of open grass-lined swales from the airfield and an underground storm sewer system from the developed area. Drainage from the station flows into Perdido Bay by means of a concrete-lined trapezoidal ditch equipped with an oil and water separator.

Issue

As development increases at the NASP Complex, the control of stormwater drainage is an increasingly important aspect of water quality control. More impermeable surface area (less land available for absorption and filtration) translates to faster runoff rates and increased pollution loads. More development means more land clearing and landscaping activities that require appropriate stormwater management practices. It is especially important to have proper stormwater management when developed areas are in close proximity to surface waterbodies as they are at NASP, NOLF Bronson, Corry Station, and Saufley Field.

Goals, Objectives, Strategies, and/or Projects

Table 5-4 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to stormwater and water quality control issues.

Table 5-4			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO STORMWATER AND WATER QUALITY CONTROL			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.1	Stormwater Management Program.
1	1.1	1.1.2	Development of a Soil Erosion Control Plan.
1	1.1	1.1.3	Use of pesticides and effects on water quality.
1	1.1	1.1.4	Effects of Stormwater on wetland quality.
1	1.3	1.3.1	Development of 100-year floodplain and impacts to runoff.
2	2.1	2.1.1	Effects of silvicultural practices.
3	3.1	3.1.1	Habitat development and protection program.

Long-Term Management

The NASP Complex will implement programs to reduce pollutant loading and stormwater runoff into wetlands and waterbodies. Wetland quality and wildlife habitat will benefit from the reduction of stormwater and pollutant loading. In addition, seagrass beds found along the southwestern shoreline of NASP, which are particularly susceptible to increased turbidity and pollutant loading, would benefit from reduced stormwater flow. Although the NASP Complex has not adopted official BMPs for stormwater management, it will operate under the following management guidelines for stormwater runoff and water quality control:

1. The NASP Complex will establish a shoreline buffer along developed and undeveloped areas adjacent to Bayou Grande, Pensacola Bay, Big Lagoon, and Perdido Bay, where feasible. A natural vegetated buffer will be maintained from the normal high water line 50 feet landward. Allowances may be made for essential military mission requirements;
2. The NASP Complex will prevent pollutant loading in stormwater by operating under its Facility Response Plan, HW Management Program, and SPCC Plan;
3. The NASP Complex will manage stormwater runoff from new development to achieve *no net increase* in stormwater discharge volume from the Installation, unless there are no means to do so that will meet the military mission;
4. The NASP Complex will provide stormwater retention by developing and enhancing stormwater ponds. Stormwater ponds often function as wetlands and can provide ideal growing conditions for emergent wetland vegetation, which may be useful in pollutant removal;

5. The NASP Complex will consider, where feasible, retrofitting stormwater infrastructure to provide natural infiltration of stormwater (e.g. grass swales, shallow retention ponds adjacent to intakes), or to increase detention time prior to discharge;
6. The NASP Complex will use natural or created buffers around new stormwater ponds to provide wildlife habitat; reduce impacts associated with runoff; filter sediments and sediment-bound pollutants; and facilitate infiltration prior to discharge into waterbodies. Reducing sediment loading will increase the longevity of the retention ponds and further reduce maintenance costs;
7. The NASP Complex will use permeable alternatives to impervious surfaces; for example, wood decks instead of concrete patios, grass swales instead of concrete;
8. With the intent of helping to protect water quality, the NASP Complex will inventory its use of pesticides and fertilizers and will assess alternatives to reduce the use of mineral fertilizers and/or pesticides. The NASP Complex intends to use a combination of organic and mineral fertilizers to minimize the potential for nutrient loading in stormwater runoff while ensuring the growth of landscaping and grass cover on the Installations. The NASP Complex intends to use pesticides with lower toxicity levels and to apply them at reduced rates;
 - The use of organic matter to provide nutrient material will be considered. Organic matter consists of the wastes and remains of plants and animals. Organic matter is the nutrient of choice because it improves soil composition and structure by making soil more resistant to erosion by stormwater runoff. Other benefits from increasing the organic matter content of soil include better soil aeration and temperature control, increased water holding and nutrient retaining capacities, and a steady supply of nutrients to plants,
 - Mineral fertilizers are materials, either natural or manufactured, containing nutrients essential for the normal growth and development of the plants. Mineral fertilizers include both fast and slow-release fertilizers, and will be used as a supplement to organic matter for the growth and development of landscaping and grass cover,
 - Where feasible, slow-release fertilizers will be the mineral fertilizer of choice, and will be used, after consultation with the NRM, in combination with organic matter when it is impractical to only use organic matter. Slow-release mineral fertilizers are released at slow rate throughout the season, thereby reducing the amount of waste by leaching and reducing the potential for surface water contamination. Other benefits of using slow-release fertilizers are the reduced application frequency and the minimization of fertilizer burn,
 - A blended fast and slow-release mineral fertilizer will be used in areas where the following conditions are met: (1) areas of size where the use of organic material is impractical; and (2) areas where there is no potential for the discharge of fertilizer into surface water bodies,
 - Fertilizers or pesticides will not be applied before or during rain events due to the strong likelihood of runoff. Fertilizers and pesticides will be applied during maximum plant uptake periods to minimize leaching, and

- The NASP Complex will contact the ABD of SOUTHDIV (843-820-7140) and the FDACS Pesticide Division (850-487-2130) for information regarding fertilizer and pesticide applications.

Environmental Considerations Relative to Management Practices

Loss of open space, forested areas, and/or wildlife habitat for the construction of stormwater facilities.

Applicability of Other Management Issues and NASP Complex Programs

The following management issues, programs, and actions are directly or indirectly related to the management of stormwater and water quality and will be consulted for additional management information or provided as additional training and education:

- Wetlands – Section 5.1.1 – the use of wetlands for stormwater management and buffers for water quality protection, impacts of stormwater on wetlands;
- Invasive species – Section 5.1.2 – invasive species in stormwater wetlands;
- Soil conservation and erosion – Section 5.1.3 – soil erosion as a pollutant load in stormwater runoff;
- Landscaping and grounds maintenance– Section 5.1.5 – using the principles of xeriscaping to reduce the use of pesticides and fertilizers;
- Floodplain management – Section 5.1.6 – runoff storage;
- Train and educate all contract and department personnel on actions that may directly or indirectly contribute to soil erosion problems; and
- Train and educate all contract and department personnel on actions that may directly or indirectly damage wildlife (i.e., actions that may affect bats living in stormwater drainage facilities, etc.).

Ecosystem Management

Like soil conservation, the effective management of stormwater, and associated pollutant loading, is essential to realize the ecosystem management concept. Implementation of BMPs in developed, semi-developed, and unimproved areas will help protect water quality and habitat for aquatic life. BMPs address the reduction of sedimentation, nutrient overloading, bacterial and

parasitic pests, and harmful chemicals in stormwater. Construction of any new stormwater ponds in accordance with the stormwater and water quality management concept will increase wildlife habitat and reduce the potential for additional discharge from new development into Pensacola Bay, Bayou Grande, Big Lagoon, and Perdido Bay.

Military Mission

Improper stormwater management could lead to flooding, pollutant loading into wetlands and waterbodies, and adverse impacts to natural resources.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Stormwater

Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, 33 U.S.C. 1251, describes guidelines for the control of nonpoint source pollution.

Coastal Zone Management Act of 1972, 16 U.S.C. 1451 et seq., establishes authority (Section 6217) for States to administer coastal nonpoint pollution programs when approved by NOAA and EPA. The NASP Complex will coordinate with the State of Florida for nonpoint source compliance with the Florida Coastal Nonpoint Source Pollution Control Program.

Executive Order 11990, 24 May 1977, as amended, directs the preservation and enhancement of wetlands.

Oil Pollution Act of 1990 (OPA 90), 33 U.S.C. 2701, requires planning for, rescue of, minimization of injury to, and assessment of damages or injury to fish and wildlife resources from the discharge of oil.

Comprehensive, Environmental Response, Compensation and Liability Act, 42 U.S.C. 9601, et seq., authorizes Natural Resources Trustees to recover damages for injury to, destruction of or loss of natural resources resulting from the release of a hazardous substance.

OPNAVINST 5090.1B, par 22-4.3(b), discusses natural resources management relating to nonpoint source pollution.

OPNAVINST 5090.1B, par 27, establishes requirements, guidelines and standards for the assessment of damages arising from the release of oil or hazardous substances.

Florida Statutes, Chapter 373.403, regulates the management and storage of surface water and is implemented by NFWMD under Environmental Resources Permitting.

Florida Statutes, Chapter 376, Pollutant Discharge Prevention and Removal, prohibits the discharge of pollutants into coastal waters, estuaries, tidal flats, or beaches.

Florida Statutes, Chapter 380.012, The Florida Environmental Land and Water Management Act of 1972, is intended: 1) to ensure a water management system that reverses the deterioration of water quality and that provides optimum utilization of limited water resources; 2) to facilitate orderly, well planned development; and 3) to protect public health, welfare, safety, and quality of life for Florida residents.

Florida Statutes, Chapter 403, Florida Air and Water Pollution Control Act, conserves, protects, maintains, and improves the quality of the public water supply. Waste must not be discharged into any waters without prior approval from the State.

Florida Statutes, Chapter 582.05, provides control and prevention of soil erosion, prevention of damage from floodwater and sediments, and conservation of soil and water resources.

Florida Coastal Management Program, requires federal action in the coastal zone to be consistent with 23 Florida Statutes, which are administered by 11 state agencies and four of the five state water management districts. The coastal zone includes the area encompassed by the State's 67 counties and its territorial seas. Therefore, federal actions which occur throughout the state are reviewed by the State for consistency with the FCMP. Consistency with the statutes constitutes consistency with the FCMP (DCA 1999).

Additional Sources of Information

Telephone Contacts:

EPA, Region 4, Regulatory Contact for stormwater permitting – Michael Mitchell – (404) 562-9303

NWFWMD – (850) 539-5999

FDEP, Stormwater Treatment – (850) 595-8320

Internet Addresses:

Nonpoint Source Pollution of Surface Waters: <http://esa.sdsc.edu/carpenter.htm>

Water Runoff Control Programs: <http://webcentral.bts.gov/ntl/DOCS/RUNOFF.html>

Controlling Nonpoint Source Pollution: <http://waterknowledge.colostate.edu/roads.htm>

NWFWMD: <http://sun6.dms.state.fl.us/nwfwmd/>

FDEP: Division of Water Facilities: www2.dep.state.fl.us/water/

FDEP: Best Management Practices for Stormwater/Non-point Source Management: www2.dep.state.fl.us/water/slerp/nonpoint_stormwater/stormh2o.htm

FDEP: State Statutes: www.dep.state.fl.us/ogc/documents/statutes/text/403.pdf

South Florida Water Management District: Florida Administrative Code:
http://141.232.1.11/org/reg/reg_rules.html

Environmental Law Institute: www.igc.apc.org/eli/

USGS Water Resources Home Page: <http://h2o.usgs.gov/>

USGS Water Resources of Florida Home Page: www-sflorida.er.usgs.gov/

EPA: Office of Water: www.epa.gov/owow/

5.1.5 Landscaping and Grounds Maintenance

Landscaping and grounds maintenance is defined here as landscaping design and construction practices intended to benefit the environment and to generate long-term cost savings. Such practices include using native species, which will reduce the need for irrigation and fertilization, stabilize soil, and improve wildlife habitat. Grounds maintenance is provided by the Real Property Management Division of the Facilities Department.

Issues

Landscaping and maintenance time and costs on the NASP Complex are excessive under current budgetary constraints. The NASP Complex needs to minimize landscaping costs while ensuring the quality of aesthetic and environmental resources.

Goals, Objectives, Strategies, and/or Projects

Table 5-5 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to landscaping and grounds maintenance issues.

Table 5-5			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO LANDSCAPING AND GROUNDS MAINTENANCE			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.3	Reduction of pesticides and fertilizers.
1	1.2	1.2.1	Exotic and invasive species control.
1	1.6	1.6.1	General landscape management.
1	1.6	1.6.2	Xeriscaping.

Long-Term Management

The President's 1994 Memorandum on Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds calls for landscaping practices that benefit the environment, as well as generate long-term cost savings at Federal facilities. According to the Memorandum, the following guidelines should be followed where cost-effective and to the extent practicable:

- Use regionally native plants for landscaping;
- Design, use, or promote construction practices that minimize adverse effects on the natural habitat;
- Take measures to prevent pollution (i.e. reduce fertilizer and pesticide use);
- Implement water-efficient practices; and
- Promote awareness of environmental and economic benefits of native landscaping.

The NASP Complex will use xeriscaping in landscaping around all newly constructed buildings or other facilities to create relatively low maintenance and low cost landscapes, reducing the need for intensive labor (i.e. hand trimming and bed maintenance). Xeriscaping will also be phased into existing landscaped areas. Xeriscaping offers a viable alternative to the typically high-volume water requirements of other landscaping approaches by conserving water through creative landscaping. Xeriscaping uses native plants. Native plants are typically better adapted to local climatic conditions and variations; more resistant to drought, disease, and pests; and require less water than non-native species. The potential benefits of xeriscaping include reduced water use (typically from 30 to 80 percent), reduced heating and cooling costs from placement of appropriate tree species, decreased stormwater and irrigation runoff, fewer pesticide and fertilizer applications, less yard waste, increased habitat for plants and animals, and lower labor and maintenance effort and thus costs.

Xeriscaping incorporates seven principles (Xeriscape Colorado Inc. 1999):

1. Planning and design for water conservation and beauty;
2. Creating practical turf areas using manageable sizes, shapes, and appropriate grass species;
3. Selecting plants with low water requirements and grouping plants with similar water needs, then experimenting to determine how much and how often to water the plants;

4. Using soil amenities, such as compost or manure, appropriate to site and plant needs;
5. Using mulches, such as wood chips, to reduce evaporation and reduce soil temperatures;
6. Irrigating efficiently with properly designed systems (including hose-end equipment) and by applying the right amount of water at the right time; and
7. Maintaining the landscape by mowing, weeding, pruning, and fertilizing properly. Grass mowings should not be excessive and should be based on height rather than by arbitrarily specified time intervals.

To integrate the principles of xeriscaping into existing landscaped areas, the NASP Complex will evaluate current landscaping practices to determine how effective the principles of xeriscaping would be in improving existing conditions. The NASP Complex will determine: (1) if implementation of xeriscaping principles will provide sufficient benefits to justify any additional cost; (2) if the implementation of certain principles may achieve the desired results; or (3) if continuation of existing conditions will achieve desired results. The NASP Complex will monitor the success of integrating the principles of xeriscaping with existing landscaped areas and adjust management practices as warranted.

Grounds maintenance at the NASP Complex will be accomplished using the following guidelines:

- Avoid excessive mowing. Grass mowings should be scheduled on the basis of height, rather than by arbitrarily specified time intervals, if practicable;
- Maintain good ground cover through proper fertilization to prevent erosion. If erosion occurs, the problem will be fixed as soon as possible;
- Maintain healthy lawns to prevent insect infestations and disease;
- Minimize hand trimming; and
- Implement grounds maintenance activities in the vicinity of airfields to reduce BASH-related incidents. Grounds maintenance in the vicinity of airfield operations require significantly different management than in other developed areas; guidelines are provided in the NASP Instruction 3751.1C (BASH Plan).

Grounds maintenance personnel will contact the NRM for technical advice prior to tree and shrub pruning, fertilization, grass replacement, species selection, new landscape projects, and new irrigation projects. Pesticide and fertilizer applications during landscaping and grounds maintenance will be consistent with the long-term management concepts pertaining to pesticides and fertilizers in Section 5.1.4 (Number 8).

Environmental Considerations Relative to Management Practices

Temporary disturbances to habitats during upgrading to xeriscape landscaping may occur.

Applicability of Other Management Issues and NASP Complex Programs

The following management issues, programs, and actions are directly or indirectly related to the management of landscaping and grounds maintenance will be consulted for additional management information or provided as additional training and education:

- Wetlands – Section 5.1.1 – use of xeriscaping in wetland buffers;
- Invasive species – Section 5.1.2 – invasive species and pesticide use;
- Urban forestry – Section 5.1.7 – urban forestry as a component of xeriscaping;
- Stormwater – Section 5.1.4 – xeriscaping buffers around stormwater ponds;
- The NASP Complex Grounds Maintenance Program will be used for routine maintenance activities (e.g. mowing, pruning, etc.);
- The NASP Complex grounds maintenance crew will be trained in the principles of xeriscaping;
- Using volunteer groups, including local Scout troops and interested Installation personnel, to offer hands-on training or individual participation to better demonstrate the concept, application, and importance of xeriscaping; and
- The xeriscape management concept will be integrated into the Complex's grounds maintenance program, urban forestry program and pest management program.

Ecosystem Management

Beneficial landscaping through construction and design practices is consistent with an ecosystem management approach because it reduces the need for irrigation, pesticides, and fertilizers and relies on the functions and characteristics of native plant species. The use of native species also is recommended for the reduction and control of invasive species. Reducing the demand for irrigation, fertilizers, and pesticides reduces costs associated with grounds maintenance and reduces pollutant loading to stormwater runoff and surrounding surface waters and aquatic communities.

Military Mission

Because inappropriate landscaping and grounds maintenance practices (e.g. excessive use or application of inappropriate pesticides) may potentially affect federally and state-designated endangered or threatened species and/or water quality, consequent regulatory actions by agencies such as the USFWS, FDEP, or USACE could threaten the military mission of the NASP Complex. In addition, appropriate landscaping and maintenance practices need to be implemented to improve quality of life for everyone.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Landscaping

The President's April 16, 1994, Memorandum on Environmentally Beneficial Landscaping, requires implementing landscaping practices that are intended to benefit the environment and generate long-term cost savings.

Executive Order 13112, 3 February 1999, requires executive agencies to restrict the introduction of exotic organisms into natural ecosystems.

Federal Insecticide, Fungicide and Rodenticide Act, 7 U.S.C. 136, governs the use and application of pesticides in natural resources management programs.

Federal Water Pollution Control Act as amended by the Clean Water Act of 1977, 33 U.S.C. 1251, prohibits the discharge of dredged or filled materials into waters of the United States, including wetlands, without first obtaining a permit from USACE (Section 404 of the CWA).

OPNAVINST 5090.1B, par 22-4.3(h), discusses natural resources management relating to environmentally and economically beneficial landscaping.

Additional Sources of Information

Telephone Contacts:

St. Johns River Water Management District (SJRWMD) – Xeriscaping 1-800-725-5922

Escambia County Cooperative Extension Service – (850) 475-5230

Internet Addresses:

Where to find native nurseries: www.fnps.org/wheretofind.html

Escambia County Cooperative Extension Service:
<http://www.ifas.ufl.edu/www/extension/map/escambia-county.htm>

Creating Vegetative Designs:
<http://www2.nrcs.usda.gov/Netdynamics/VegSpec/pages/HomeVegspec.htm>

Xeriscaping: <http://www.xeriscape.org>

Association of Native Nurseries: <http://www.afnn.org/>

Low energy landscapes in Florida:
http://edis.ifas.ufl.edu/scripts/htmlgen.exe?DOCUMENT_MG013

FNAI: <http://www.fnai.org>

Florida Native Plant Society: <http://www.fnps.org>

TNC: <http://www.tnc.org/infield/State/Florida/>

NWFWMD: <http://www.state.fl.us/nwfwmd/index.html>

SJWMD: <http://sjr.state.fl.us/>

WaterWiser is a program of the [American Water Works Association](http://www.waterworks.org/), which is operated in cooperation with the [U.S. Environmental Protection Agency](http://www.epa.gov/) and the [U.S. Bureau of Reclamation](http://www.usbr.gov/): <http://www.waterwiser.org>

5.1.6 Floodplain Management

Floodplain management is the operation of an overall program of corrective and preventive measures for reducing flood damage.

Issues

Over the years, substantial development (i.e. grading, filling, dredging, extraction, storage, soil mixing, and the construction or improvement of structures) has occurred within the 100-year floodplain at NAS Pensacola (see Figure 3-1). Most of the ecological functions of the floodplain, such as the transport and cycling of nutrients and provision of productive and essential habitats, have been lost. Much of the 100-year floodplain on the eastern portion of NASP has been severely impacted by development.

Goals, Objectives, Strategies, and/or Projects

Table 5-6 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to floodplain management issues.

Table 5-6			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO FLOODPLAIN MANAGEMENT			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.1	Stormwater management.
1	1.3	1.3.1	Floodplain management.
1	1.4	1.4.1	Land management practices occurring on floodplains.
3	3.1	3.1.1	Habitat development and protection.

Long-Term Management

The NASP Complex will avoid construction or management practices that will adversely affect the attenuation capacity of the 100-year floodplain unless it finds that: (1) there is no practical alternative; or (2) the proposed action has been designed to minimize harm to or within the floodplain. To enforce this, preferred sites for development will be outside the 100-year floodplain. If there is no suitable location outside the 100-year floodplain that will satisfy the need of the military mission (for example, proximity to dependent function), preferred sites for development will be within previously disturbed areas of the 100-year floodplain. For all development within the 100-year floodplain, the NASP Complex will evaluate alternatives and techniques for controlling and reducing the potential for flood damages. The NASP Complex will evaluate the use of the county's floodplain regulation as guidance for development in the floodplain. Consistent with DoN's policy of *no net loss* of wetlands, the NASP Complex will avoid any construction in wetlands within the 100-year floodplain. Wetlands play an important role in flood control by providing storage, slowing flood waters, reducing flood peaks, and increasing the duration of the flow.

Environmental Considerations Relative to Management Practices

None.

Applicability of Other Management Issues

The following management issues, programs, and actions are directly or indirectly related to floodplain management and will be consulted for additional management information or provided as additional training and education:

- Wetlands – Section 5.1.1 – Wetlands for flood attenuation; and
- Stormwater—Section 5.1.4- Stormwater runoff and flooding.

Ecosystem Management

The proper management of the 100-year floodplain is an essential ecosystem management concept. Floodplains perform important natural functions, including temporary storage of floodwaters, moderation of peak flows, maintenance of water quality, groundwater recharge, and erosion prevention. Also, floodplains provide habitat for wildlife, recreational opportunities, aesthetic benefits, and areas of archaeological significance.

Military Mission

Inappropriate floodplain management practices have the potential to decrease the flood attenuation capacity of the floodplain and increase the amount and rate at which flooding occurs. Flooding has the potential to adversely affect necessary infrastructure components of the military mission.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Floodplains

Executive Order 11988, Floodplain Management, May 24, 1977, requires federal service agencies to avoid construction or management practices that will adversely affect floodplains, unless it is found that: there is no practical alternative and the proposed action has been designed to minimize harm to or within the floodplain.

OPNAVINST 5090.1B, par 22-4.3(g), discusses natural resources management relating to floodplain management.

Additional Sources of Information

FEMA's Floodplain Management Summary: <http://www.fema.gov/mit/fldmit.htm>

Floodplain Management: <http://www.fws.gov/directives/613fw1.html>

Strategies for floodplain management: <http://floodplain.org/c-overvi.htm>

NWFWMD: <http://www.state.fl.us/nwfwmd/>

5.1.7 Urban Forestry

Urban forestry is the management of forests and related natural resources within human communities. Urban forests include trees, groups of trees, or stands of trees occurring within improved or semi-improved lands, exclusive of forests managed under the NASP Complex Forestry Management Plan. Successful urban forestry programs manage these resources to enhance both natural and human-built features.

Issues

Trees and vegetation in urban areas, when properly managed, contribute to ecological health and quality of life at the NASP Complex. Certain areas at the NASP Complex, such as industrial and residential areas, would benefit from urban forestry practices that contribute to:



- Reduced noise levels, stormwater runoff, and soil erosion;
- Increased habitat for wildlife;
- Air quality improvements, dust control, purer air and dust control, reduced pollution, and controlled wind speeds;
- Moderated temperatures in paved areas and around buildings;
- Aesthetic improvements, including color, views, and seasonal changes; and
- Defined space, buffers, and barriers.

In addition, urban landscaping has been shown to contribute to individuals' physical and mental health and quality of life. Urban landscaping also improves the public image of the Installation and directly relates to public opinion and trust in the community.

Goals, Objectives, Strategies, and/or Projects

Table 5-7 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to urban forestry issues.

Table 5-7 NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO URBAN FORESTRY			
Goals	Objectives	Strategies	Comments
1	1.2	1.2.1	Removal of invasive and exotic species.
1	1.6	1.6.1	General landscape management.
1	1.6	1.6.2	Xeriscaping.
1	1.6	1.6.3	Urban Forestry Plan.
3	3.1	3.1.3	Golf Course Habitat Conservation Plan (see Project No. 6, Appendix A).

Long-Term Management

Long-term management for urban forestry will involve the central management of urban forest maintenance, tree planting, and tree protection to enhance the quality of life on the Installation. The NASP Complex will identify areas where the benefits of urban forestry can be applied, develop a plan for planting trees and shrubs, recruit and train volunteers (e.g. scout groups to help plant trees), and develop partnerships to support the Complex's urban forestry program.

The program primarily includes planting, removal, maintenance, and protection of urban trees and forests. Currently, the NASP Complex is working under a "working urban forestry plan" that includes an inventory and maintenance schedule for urban forestry projects. The primary components of the working urban forestry plan for the NASP Complex are listed below.

- Selection of the appropriate tree species.
- Use of appropriate maintenance measures (pruning, fertilizing, watering) for new plantings and established trees.

- Mulching and tree protection from mowers and weedeaters.
- Completion of inventories and annual work plans to implement the overall urban forestry plan.
- Use of volunteer organizations for assistance with planting and maintenance activities.

The NASP Complex will strive to continue its achievement as a Tree City USA participant. Tree City USA is sponsored by The National Arbor Day Foundation in cooperation with the National Association of State Foresters, USDA Forest Service, U.S. Conference of Mayors, and National League of Cities. NASP has achieved the “Tree City USA” award every year since 1996. To achieve the annual recertification, (as well as the initial award), four standards must be met: the establishment of a tree board or department which develops and implements a tree management program; development of a community tree ordinance; the expenditure of at least \$2 per capita, annually, for the urban forestry program; and the observance of a Navy Tree Awareness week.

Environmental Considerations Relative to Management Practices

Need for watering, pest control, and protection from injury during establishment of new trees.

Applicability of Other Management Issues and NASP Complex Programs

The following management issues, programs, and actions are directly or indirectly related to urban forest management and will be consulted for additional management information or provided as additional training and education:

- Landscaping and grounds maintenance – Section 5.1.5 – using principles of xeriscaping;
- Wetlands – Section 5.1.1 – use of urban forest management to create buffers;
- Soil erosion – Section 5.1.3- use of urban forest management to prevent erosion;
- Stormwater – Section 5.1.4 – use of urban forest management to minimize stormwater runoff;
- Using volunteer groups, including local Scout troops and interested Installation personnel, to offer hands-on training or individual participation to better demonstrate the concept, application, and importance of urban forestry;
- Maintenance according to NASP Complex’s grounds maintenance program;

- Urban forest management practices will be integrated into the NASP Complex grounds maintenance program; and
- Incorporating principles of urban forest management into the Golf Course Habitat Conservation Plan (see Project No. 6, Appendix A).

Ecosystem Management

Urban forestry supports the ecosystem management concept by providing wildlife habitat through the development of new greenways and managing urban areas for the enhancement of wildlife. Urban forests helps reduce stormwater runoff and soil erosion, and will be used as a component of xeriscaping. Urban trees can also play an important part in temperature modification in developed areas.

Military Mission

Urban forestry practices can be implemented to help protect and enhance water quality and wildlife; thereby reducing the potential for adverse impacts to these resources that could threaten the military mission. It can also play an important part in improving quality of life for those supporting the military mission.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Urban Forest Management

Federal Noxious Weed Act of 1974, 7 U.S.C. 2801, establishes control and eradication of noxious weeds and regulates them in interstate and foreign commerce.

Executive Order 13112, Invasive Species, as previously described.

OPNAVINST 5090.1B, par 22-4.4, discusses laws that govern natural resources management relating to the protection and management of forest resources.

NASPNCLAINST 11015.1A, identifies requirements, delineates responsibilities, establishes procedures, and issues policies for the management of urban forests at NASP.

Additional Sources of Information

Telephone Contacts:

Escambia County Forester – (850) 587-5123

Alliance for Community Trees (800) ACT-8886. Alliance for Community Trees provides support for nonprofit organizations involved in planting trees and educating the public about the benefits of trees in urban areas.

National Tree Trust Foundation - (202) 846-TREE. A nonprofit organization that has distributed trees to over 500 community groups across the nation. The Trust planted over 1.1 million trees in 1996.

Internet Addresses:

Tree City USA: <http://www.arboday.org/programs/treecityusa.html>

Vegetation Management: www.sfrc.ufl.edu/Extension/vegman.htm

Florida's Forestry information: www.sfrc.ufl.edu/Extension/ffws/ffwshome.htm

Serving the Wholesale Nursery Industry: <http://www.growit.com>

Your Florida Backyard: <http://www.nsis.org>

American Forests – (202) 955-4500: <http://www.americanforests.org/>

American Forests is one of the nation's oldest citizen conservation organizations and a leading force in the protection and management of forest resources in America.

National Arbor Day Foundation (402) 474-5655: <http://www.arboday.org/>

A major program of the foundation is the Tree City USA program. Other programs include Tree Line USA, Conservation Trees, Trees for America, Arbor Day Farms, and Rain Forest Rescue.

International Society of Arboriculture – (217) 328-2032: <http://www2.champaign.isa-arbor.com/>

A nonprofit organization for municipal foresters and professionals in arboriculture and urban forestry.

National Association of State Foresters – (202) 624-5415

The association represents the directors of the state forestry agencies from all 50 states.

Society of American Foresters – (301) 897-8720

An organization of 18,000 members involved in allied areas of professional forestry.

Society of Municipal Arborists – (314) 862-1711

The organization's approximately 500 members promote interest in the planting and maintenance of public trees and the preservation of public open space.

USDA Forest Service – (202) 205-9694: <http://www.fs.fed.us/>

The lead federal agency for providing technical and financial assistance and research on urban and community forestry for the nation.

Treelink: <http://www.treelink.org/>

Information, research, and networking for people working in urban and community forestry.

5.2 Forest Management

The NASP Complex will protect and enhance forest resources by practicing ecologically-sound forest management leading to sustained yield of quality forest products, watershed protection, and wildlife habitat protection and management. Ecologically-sound stewardship involves managing forestland for various components, including forest products, wildlife habitat, aesthetics, and recreation. Components of the NASP Complex annual work plan generally include prescribed burning, timber sales, timber inventory, site preparation, and reforestation. To protect and enhance forest resources, the Complex will implement the strategies, projects, and initiatives described in Section 4 of the INRMP.

Forest Management may be divided into two major components: silviculture and forest protection. Silvicultural practices include timber harvesting, pine straw harvesting, prescribed burning and establishment of firebreaks, herbicide application, forest fertilization, site preparation, and regeneration. Forest protection includes protection from wildfire, diseases, and insects.

Approximately 2,487 acres of land are being managed as commercial forestland at the NASP Complex (see figures 3-1 through 3-4). This includes forest stands at NASP, NOLF Bronson, Corry Station, and Saufley Field. The forest management program for the NASP Complex is administered by the NRM and



of

Forester. The program provides for sustained-yield of quality timber products, and protection and development of other natural resources in an ecosystem management concept. The program is set up using a 10-year management plan with continual review and updating as required.

Slash and longleaf pine are the favored species, and will be perpetuated on those sites suited for the particular species. There are also naturally occurring stands of sand pine present on NASP. Hardwoods are limited in total area, but they nevertheless contribute much to the food and habitat needs of wildlife in the area. Some of the prevalent hardwood species include hickory, oak, dogwood, sweetgum, holly, maple, and blackgum. Hardwoods will be given equal importance with pine in areas where hardwood species can be managed. The leaving of mast trees, den trees, and cavity trees for wildlife purposes, will be given a high priority. During this 10-year period, forest stands will continue to be thinned to improve the quality of merchantable trees to be carried through the rotation age (80 years unless modified for the military mission). In addition, prescribed burning and herbicide and fertilizer applications will be utilized to improve stand quality and habitat.

5.2.1 Silvicultural Activities

Silvicultural activities include timber harvesting, pine straw harvesting, prescribed burning (including the establishment of firebreaks), herbicide application, forest fertilization, site preparation and regeneration. Timber harvesting methods include the following: thinning; improvement cutting; salvage cutting; clear cutting; seed tree cutting; and shelterwood cutting. Silvicultural practices are described below.

Thinnings are cuttings in immature stands to increase the rate of growth of timber products in planted stands and maintain stand composition. A thinning can be a removal of every other row of trees, or the removal of selected trees that are ready for the market and low-value trees that are competing with future crop trees. In either case, a thinning will redistribute the growth potential of the site to the best trees so that they continue to grow at an acceptable growth rate. This action also increases sunlight penetration to the forest floor, which stimulates understory growth and creates food and cover for wildlife.

Improvement cuttings are made in stands older than the sapling stage, usually to improve the composition. This type cut is most often applied to wild stands being placed under management and involves removal of undesirable trees that are of sufficient size to provide merchantable products. Types of trees removed in addition to the undesirable species include diseased, mechanically injured, unthrifty (likely to die before the next cut), insect infested, and those of poor form (forked or crooked). Improvement cuttings and thinnings in a stand are usually concurrent operations.

Salvage cuttings remove dead or injured trees in order to utilize them before they become unable to be harvested. Trees are salvaged promptly following storm events, severe fires, or attacks of insects or diseases. Salvage cuts are sometimes required to clear construction sites.

Clear cuttings will be used at the discretion of the NRM in consultation with SOUTHDIV foresters and fish and wildlife biologists, as well as other federal and state agencies. Clear

cutting will be used when there is an identified need to change species (e.g. slash pine to longleaf pine), remove an over mature or diseased stand, or for another reason deemed essential (i.e. following natural disasters). No clear cutting is planned for this 10-year period. Occasionally, clear cutting is required to meet mission safety criteria, such as height restrictions around runways.

Shelterwood cuttings will be used at the discretion of the NRM in consultation with SOUTHDIV foresters and fish and wildlife biologists, as well as other federal and state agencies. Shelterwood cutting will be used to regenerate forest stands through a series of perhaps two to three cuts rather than making one final clear-cut. This system is frequently used to regenerate heavy seeded species. Cuttings may be separated by as much as 20 years.

Seed tree cuttings will be used at the discretion of the NRM in consultation with SOUTHDIV foresters and fish and wildlife biologists, as well as other federal and state agencies. Seed tree cutting involves the removal of all trees except trees of the desired species in sufficient numbers to reseed the cut-over area.

Prescribed burning is the purposeful application of fire in a controlled, knowledgeable manner to remove or reduce forest fuels on a specific land area under selected weather conditions. A prescribed burn generally involves backing a low-intensity, surface fire through forest stands. Prescribed burning improves habitat by removing dense, scrubby understory vegetation and allowing early successional flora to grow. Burning removes forest floor litter making wildlife food easier to find, promotes germination of plant seeds scarified by the heat, releases minerals and nutrients tied up in vegetation to the soil, and creates an edge effect along the boundaries between burned and unburned areas. In addition, prescribed burning reduces fuel levels and the chance of wildfires, which could destroy or seriously damage forest stands and potentially cause a threat to the military mission. Prescribed burning cannot be used in hardwood stands under management. Sand pines are also very sensitive to fire.

Firebreaks are a necessary part of a fire management program. Existing features such as roads and streams may be used as firebreaks, but oftentimes such features are not present. Where existing features do not occur, man-made firebreaks must be established. Plowed firebreaks will be disked and leveled to prevent soil erosion and interruption of boundaries and hydrology. Permanent firebreaks may later be used for forest access.

Pinestraw harvesting involves the removal of annual pine litterfall from the forest floor. Quantity removed varies by age of stand and site quality. Younger (5 to 10 years) stands are generally more productive than older (>15 years) stands.

Herbicide application is used as a TSI practice to control understory vegetation in areas where prescribed burning cannot be accomplished.

Forest Fertilization is used as a TSI practice to improve timber growth rates on relatively poor quality sites. Combined with herbicide applications, prescribed burning, and thinning, fertilization will promote the more rapid development of the forest stand so that other ecosystem values can be realized.

Site preparation includes activities designed to improve conditions for seeding or planting that result in increased germination or seedling survival and tree growth. Examples include land-clearing activities, such as drum chopping, shearing, raking, piling into windrows,

burning, and pesticide applications. Additional methods of site preparation include complete vegetation removal through chipping or other debris removal methods, followed by disking or scarification.

Regeneration is the renewal of a forest by either natural or artificial means. Regeneration is generally preceded by a clear cut, a seed tree cut, or a shelterwood cut. Regeneration methods include natural seeding, planting, and direct seeding. The need for regeneration is not anticipated during this 10-year period.

Issue

Forest stands at the NASP Complex require periodic maintenance (i.e. use of silvicultural activities). Maintenance neglect represents a threat to the military mission and to the sustainability of forestry and wildlife resources. Timber stands require maintenance to increase the growth rate of the preferred trees, to reduce the potential for wildfires, to control diseases and insect pests, and to ensure the continuation of fire-dependent plant and wildlife communities.

Goals, Objectives, Strategies, and/or Projects

Table 5-8 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to silvicultural activities.

<p>Table 5-8</p> <p>NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO SILVICULTURAL ACTIVITIES</p>			
Goals	Objectives	Strategies	Comments
1	1.2	1.2.1	Reduction and control of invasive and exotic species.
2	2.1	2.1.1	Use of silvicultural practices to maintain forest health and ensure sustained yield.
2	2.1	2.1.2	Prescribed burning training.
2	2.2	2.2.2	Use of silvicultural activities to enhance habitat for threatened and endangered species.
2	2.3	2.3.1	Use of BMPs for watershed protection.

Long-Term Management

The 10-year Forestry Management Plan for the NASP Complex is included in Appendix B. Table B-1 characterizes forest stands at each Installation within the NASP Complex. Table B-2 presents a Summary of the 10-year Forestry Management Plan for the NASP Complex. Tables B-3

through B-6 present the 10-year Forestry Management Plan for each Installation (i.e. NASP, NOLF Bronson, Corry Station, and Saufley Field).

The yearly work plan, which is based on the 10-year management plan, is prepared and submitted as an annual increment to NAVFACENGCOM via SOUTHDIV for funding of proposed work items. The annual increment identifies specific work items to be accomplished, such as timber stand improvement, reforestation, fire management, timber sales, and administrative management. The approved increment is the basic forestry work for the year. The actual forestry operations are implemented by the NRM and Forester, NASP forces, SOUTHDIV, or contractual services. Basic operation, such as marking and cruising timber, prescribed burning, inspection of timber contracts, and general forest management, are the responsibility of the Installation NRM and Forester. SOUTHDIV provides technical support and assists in contract specification preparation. The Resident Officer in Charge of Construction and Contracts (ROICC) advertises, awards, and maintains records on forestry contracts.

Forest stands at the NASP Complex are managed with an ecosystem approach for sustained yield and health. Planned silvicultural activities for this 10-year period include thinning, prescribed burning, pinestraw harvesting, herbicide application, and forest fertilization. Cutting and prescribed burn cycles will be conducted consistent with the long-term management concepts for wildlife (Section 5.3). To accomplish this, the NRM will have prescriptions reviewed by foresters and fish and wildlife biologists from SOUTHDIV, as well as other appropriate federal, state, and county agencies. This review will help ensure that ongoing management techniques include those that enhance wildlife populations that are dependent on forest ecosystems. Silvicultural activities in relation to the 10-year Forestry Management Plan are discussed below.

Thinning

The objective of scheduled thinnings is to reduce the number of trees per acre and stand density as measured by “basal area” in square feet per acre. The desired reduction in density will be determined by the NRM, and will reflect the needs of the forest stand and the associated ecosystem represented by the stand and surrounding area. In general, thinnings will be designed to promote future natural regeneration of the forest stand by leaving quality seed trees spaced appropriately. A target basal area for pine regeneration at rotation age will be from 20 to 60 square feet of basal area per acre. In pine communities, the cutting cycle will begin when the stand reaches merchantable size (approximately 13 to 15 years) and will continue every 7 to 10 years until the rotation age of 80 years. The cutting cycle will be scheduled at the discretion of the NRM. Stands older than 80 years will be

evaluated by the NRM, as well as by SOUTHDIV wildlife biologists, for their value as wildlife habitat. Ultimately, cutting will decrease stand density between 60 and 80%. Harvesting activities in forested wetlands will occur as determined by the NRM. The NASP Complex will practice snag retention, the practice of leaving dead trees standing in managed forests, to enhance wildlife habitat. Dead trees are often colonized and/or used by various wildlife species. It will be the practice of the NASP Complex not to remove a snag unless it jeopardizes property or is a safety risk.

Prescribed Burning

Prescribed burning is the primary management tool for the majority of INRMP goals and objectives. The NASP Complex will burn forest stands (pine) on a 3-year rotation, or at the discretion of the NRM. On pine sites, burns will be hot enough to kill invasive hardwoods. Burns will be scheduled in the winter to reduce fuel loads and to allow growing season burns in subsequent years, if desired. Prescribed burns will be scheduled in wetlands for habitat management. Dormant season burns can be alternated with growing season burns as long as fuel loading is reduced first. The timing of prescribed burning will take into account the ecosystem needs within the forest stand and surrounding area and will be conducted during both the growing season and the dormant season as determined by the NRM.

The establishment of firebreaks is a necessary part of the prescribed burning program to prevent fire from escaping from the burn area. Existing barriers such as roads and wetlands will be used as firebreaks where feasible, but firebreaks must be established and maintained where existing barriers are not present. Prescribed burning is dependent on weather conditions and mission-related activities. Equipment necessary to conduct fire management includes: crawler tractor; transport truck; ATVs; and other fire ignition and suppression equipment. Burns will be conducted by trained personnel.

For prescribed burns to be an effective management technique, at a minimum, the following conditions must be understood and described in each prescription: (1) recognition of the biological requirements of target species (e.g. gopher tortoise, large-leaved jointweed); (2) vegetative condition of the stand to be burned; and (3) expected results for understory and species composition.

Pinestraw Harvesting

Pinestraw harvesting generally occurs annually for 3 to 5 years followed by no harvesting for 3 to 5 years in relatively young pine stands (5 to 20 years old). This rotation prevents reduction of

site quality. Generally, 2 to 10 tons per acre per year of pine straw will be harvested in relatively young stands.

Herbicide Application

Herbicide applications are scheduled during this 10-year period for timber stand improvement as part of forest management. The herbicide work is scheduled in forest areas where prescribed burning would not be immediately effective or is not authorized due to proximity to residential areas or other smoke sensitive sites. In most cases, upon the initial treatment by herbicide, prescribed fire can then be introduced for future use. The removal of undesirable exotic species using mainly herbicides is also discussed in the land management section of the INRMP. The control of exotic species will be coordinated with the forest management plan so that forestry operations can enhance the control effort (i.e. prescribed burning following an exotic species control project).

Forest Fertilization

Fertilizer applications are scheduled during this 10-year period for timber stand improvement as part of forest management. The fertilization work is scheduled in forest areas where site quality is relatively poor. Generally, these forest stands are fertilized approximately every 10 years.

Unplanned Activities

Unplanned activities that will require a change to the plan of work in forest areas may result due to natural causes or mission related requirements. Natural causes include the effects of wildfire, insect and disease outbreaks, nuisance animal damage, and weather related events such as tornadoes, tropical storms, or hurricanes. Mission related requirements may include such actions as clearcutting of forest areas and subsequent deletion of areas from the forest management program for new facilities. Mission related changes may also require increased thinnings or other forest cuttings that allow the area to remain in forestry but will necessitate an interruption in the rotation requiring site preparation and reforestation. Should scheduled prescribed burning not occur due to mission related requirements, the application of approved pesticides in forest areas, combined with the cutting and removal of understory vegetation, may be scheduled as an unplanned activity.

Silvicultural actions for unplanned activities include the full range of available and acceptable site preparation, reforestation, pesticide applications for timber stand improvement and vegetation control, and forest harvesting methods, such as clearcutting. For purposes of the environmental assessment associated with this INRMP, 160 total acres (plus an increase of 300% in the case of

naturally caused events such as tornadoes and hurricanes) of forest area per year for the NASP Complex shall be designated as the approximate acreage requiring work described as an “unplanned activity.” If necessary, and caused by mission requirements or natural events, work in this area or combination of areas shall include clearcutting and conversion to non-forest use, or conversion to a different forest age class as required. The specific project, if mission related, shall be required to include complete environmental documentation separate from the actions designated by the INRMP as unplanned activities. If required to be removed from forest use and natural resources management, the environmental authorization established by this INRMP will cease upon the removal of the existing forest stand and its removal from natural resources management. If the unplanned activity is dictated by natural events and the area is to remain in natural resources management and forest use, unplanned activities may necessitate clearcutting, debris removal, chipping, and other site preparation techniques such as drum chopping, shearing, raking, piling into windrows, burning, and pesticide applications.

Environmental Considerations Relative to Management Practices

Potential impacts to wildlife habitat and wetland and water quality; and potential increases in soil erosion, stormwater runoff, and invasive species. Potential impacts to the military mission from prescribed burn smoke, and potential environmental impacts from the construction of forest roads.

Applicability of Other Management Issues and NASP Regional Programs

The following management issues, programs, and actions are directly or indirectly related silvicultural activities and will be consulted for additional management information or provided as additional training and education:

- Invasive and exotic species – Section 5.1.2 – control of invasive and exotic species using herbicides and prescribed burning;
- Soil conservation and erosion control – Section 5.1.3 – impacts of harvesting on soil erosion;
- Threatened and endangered species – Section 5.3.2 – habitat requirements for species;
- Habitat management – Section 5.3.2 – habitat enhancement or degradation following silvicultural activities;
- Outdoor recreation - Section 5.4 - positive and negative effects of silvicultural practices on outdoor recreational activities; and

- Offer hands-on training or individual participation to better demonstrate the concept, application, and importance of silvicultural activities.

Ecosystem Management

Silvicultural activities are essential to maintain healthy forests (especially fire-dependent ecosystems) that provide quality wildlife habitat and sustainable yields of forest products. Harvesting activities are means by which to redistribute the site's growth potential to the best trees so that they grow at a faster rate. Harvesting also stimulates understory growth, which creates food and cover for some wildlife. Prescribed burning is a natural part of many ecosystems at the NASP Complex and, when used in combination with harvesting, can maintain healthy and vigorous forest stands on the Installations, as well as provide critical habitat for rare, threatened, or endangered species.

Military Mission

Silvicultural practices such as harvesting, herbicide applications, and prescribed burning of forested areas on the Installation decrease forest fuel loads, thus decreasing fuel available to wildfires. Wildfires could threaten the NASP Complex military mission activities, facilities, and housing.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Silvicultural Activities

Federal Noxious Weed Act of 1974, 7 U.S.C. 2801, establishes control and eradication of noxious weeds and regulates them in interstate and foreign commerce.

Executive Order 13112, Invasive Species, as previously described.

DODINST 7310.5 administers the reimbursement of costs of managing forest resources for timber production. Under this regulation, only expenses related to the maintenance of timber for commercial sale are reimbursed.

OPNAVINST 5090.1B, par 22-4.4, discusses laws that govern natural resources management relating to the protection and management of forest resources.

Sikes Act, 16 U.S.C. 670 (a)-(o), authorizes conservation programs on military reservations.

DoD Directive 4715.1, establishes the Defense Environmental Security Council; the Environment, Safety, and Occupational Health Policy Board and the Defense Environmental Security Council Committee structure; and the Armed Forces Pest Management Board.

Additional Sources of Information

Technical Reports/Publications:

Myers, R., and J. Ewel. 1990. *Ecosystems of Florida*.

Drew, M.B., L.K. Kirkman, and A.K. Gholson. (1998). *The Vascular Flora of Ichauway, Baker County, Georgia: A Remnant Longleaf Pine/Wiregrass Ecosystem*. Castanea. 63:1-24.

Kirkman, L.K., M.B. Drew, L.T. West, and E.R. Blood. 1998. *Ecotone Characterization between Upland Longleaf Pine/Wiregrass Stands and Seasonally-Ponded Isolated Wetlands*. Wetlands 18:346-364.

Kirkman, L.K., R.M. Mitchell, R.C. Helton and M.B. Drew. (In review). *Productivity Controls on Plant Diversity Across an Environmental Gradient in a Fire-Dependent Ecosystem* (Submitted to Ecology).

Telephone Contacts:

Eglin Air Force Base – Natural Resources Division – (850)882-4164.

Certified Prescribed Burn Manager Training, Jim Brenner – (850) 488-6480

Florida Division of Forestry, Forest Fires and Burning Authorizations, Blackwater District – (850) 957-6145

Tall Timbers Research Station – (850) 893-4153

TNC Fire Management Office – (850) 668-0827

Florida Division of Forestry Escambia County Forester – (850) 587-5123

Florida Division of Forestry Blackwater Forestry Center - 850/957-6140

Internet Addresses:

Florida Division of Forestry Blackwater Forestry Center: <http://www.fl-dof.com/districts/bfc/>

Tall Timbers Research Station:

Plant Ecology – Effectiveness of Prescribed Burns:
www.talltimbers.org/research/peco.html

Effects of Fires on Forest Birds, Red-Cockaded Woodpeckers, Gopher Tortoises:
www.talltimbers.org/research/ve.html

A Guide for Prescribed Fire in Southern Forests: www.pfmt.org/standman/prescrib.htm

Prescribed Burning Regulations: www.sfrc.ufl.edu/Extension/ffws/pb.htm

Southern Research Station (Publication-Scientific) : www.srs.fs.fed.us/pubs/1999-12_publications.htm

Vegetation Management: www.sfrc.ufl.edu/Extension/vegman.htm

Forested Wetlands: http://edis.ifas.ufl.edu/scripts/htmlgen.exe?DOCUMENT_FR006

Florida's Forestry information: www.sfrc.ufl.edu/Extension/ffws/ffwshome.htm

Effects of Fire on Threatened and Endangered Plants:
<http://fire.r9.fws.gov/ifcc/T&EPlants/T&EPlants.htm#Abstract>

Firing Techniques: www.pfmt.org/standman/firingtech.htm

Fire Effects on Plants and Wildlife: <http://www.fs.fed.us/database/feis/>

Serving the Wholesale Nursery Industry: <http://www.growit.com>

Your Florida Backyard: <http://www.nsis.org>

[American Forests](http://www.americanforests.org/) – (202) 955-4500: <http://www.americanforests.org/> American Forests is one of the nation's oldest citizen conservation organizations and a leading force in the protection and management of forest resources in America.

[National Association of State Foresters](http://www.nasf.org/) – (202) 624-5415; The association represents the directors of the state forestry agencies from all 50 states.

[Society of American Foresters](http://www.safnet.org/) – (301) 897-8720; An organization of 18,000 members involved in allied areas of professional forestry.

[USDA Forest Service](http://www.fs.fed.us/) – (202) 205-9694: <http://www.fs.fed.us/> The lead federal agency for providing technical and financial assistance and research on urban and community forestry for the nation.

[Treelink](http://www.treelink.org/): <http://www.treelink.org/> Information, research, and networking for people working in urban and community forestry.

5.2.2 Forest Protection

Protection of the NASP Complex's forest stands involves physical hazards to individual trees such as wildfires, insects, and diseases as well as other environmental and aesthetic constraints. An aesthetic constraint may be the need to leave picturesque trees near a roadside.

Wildfires are uncontained fires in forested or open areas. Wildfires may result from human activities or weather events. The potential for severe wildfires may be decreased by implementing prescribed burning programs, which decrease fuel loads in forest stands (see Section 5.2.1).

Diseases, such as fusiform rust (*Cronartium fusiforme*), are present on the Complex. Galls are the first signs of the disease. These grow on branches and trunks of trees, eventually encircling the tree or branch and killing it. Thinnings will emphasize salvage and removal of diseased trees. It is likely that highly infected plantations may have to be cleared and replanted because, after salvage cutting, too few trees per acre will remain for future growth and development.

Insects, such as the Southern Pine, Ips, and Black Turpentine beetles, attack and kill pine trees. The attack intensity depends on the field conditions, tree vigor, and weather. Needles on trees will turn brown within several days after a fatal attack. The threat of insect infestations may be lowered by the use of pesticides and maintaining thinned healthy forests (see Section 5.2.1). Damage to trees by machinery, especially in pine stands, should be minimized because the wounds will attract insects.

Issues

Wildfires, insects, and diseases have the potential to cause severe damage in forest stands on the NASP Complex. Silvicultural activities and proper training to control wildfires, insects, and diseases at the NASP Complex are essential to carrying out the goals and objectives of this INRMP. Proper forest protection activities will increase the growth rate of the preferred trees, reduce the potential for wildfires, control diseases and insect pests, and ensure the continuation of healthy forest communities.

Goals, Objectives, Strategies, and/or Projects

Table 5-9 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to forest protection issues.

Table 5-9			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO FOREST PROTECTION			
Goals	Objectives	Strategies	Comments
2	2.1	2.1.1	Use of silvicultural activities to improve forest health.

Long-Term Management

Forest stands at the NASP Complex are managed with an ecosystem approach for sustained yield and health. Planned silvicultural activities for this 10-year period that are directly related to forest protection include prescribed burning, thinning, and pesticide application (see Section 5.2.1). To ensure proper forest protection management, the NRM will have timber prescriptions reviewed by

foresters and fish and wildlife biologists from SOUTHDIV, as well as other appropriate federal, state, and county agencies. This review will help ensure that ongoing management techniques include those that enhance wildlife populations that are dependent on forest ecosystems.

Environmental Considerations Relative to Management Practices

Potential effects of pesticides on non-target species.

Applicability of Other Management Issues

The following management issues, programs, and actions are directly or indirectly related to forest protection activities and will be consulted for additional management information or provided as additional training and education:

- Threatened and endangered species – Section 5.3.2 – effects of pesticides on threatened and endangered species;
- Wetlands – Section 5.1.1 – pesticide use in or near wetlands;
- Stormwater – Section 5.1.4 – pesticide use and stormwater runoff; and
- Offer hands-on training or individual participation to better demonstrate the concept, application, and importance of forest protection.

Ecosystem Management

Forest Protection activities are essential to maintain healthy forests that provide quality wildlife habitat and sustainable yields and prevent the accumulation of fuel loads, which could cause detrimental effects to forest stands. In addition, forest protection activities enhance the functional capacities of wetland areas within the NASP Complex by allowing prescribed burns to remove invasive species within wetland areas, and minimize the potential for catastrophic wildfires that could decimate forest stands and expose large areas of soil to erosion.

Military Mission

Forest protection helps prevent wildfires which could threaten the NASP Complex military mission activities, facilities, and housing.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Forest Protection

Federal Noxious Weed Act of 1974, 7 U.S.C. 2801, establishes control and eradication of noxious weeds and regulates them in interstate and foreign commerce.

Executive Order 13112, Invasive Species, as previously described.

Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. 136, requires that all pesticides, whether for commercial or private use, be applied in accordance with product labeling and that containers are properly disposed of. EPA is responsible under FIFRA for the registration of all pesticide active ingredients used in the United States.

Federal Plant Pest Act, 7 U.S.C. 150a et seq., regulates the importation and interstate movement of plant pests and authorizes the Secretary of Agriculture to take emergency measures to destroy infected plants or materials.

Florida Statutes, Chapter 487, the Florida Pesticide Law, regulates the distribution and use of pesticides.

OPNAVINST 6240.4B, 27 August 1998, DoD Pest Management Program, provides the DoN with policies for implementing pest management programs directed against pests that conflict with or adversely affect the mission of the DoD; affect the health and well-being of the DoN personnel and their dependants; attach or damage real property, supplies, or equipment; adversely affect the environment; or are otherwise undesirable.

DODINST 7310.5 administers the reimbursement of costs of managing forest resources for timber production. Under this regulation, only expenses related to the maintenance of timber for commercial sale are reimbursed.

OPNAVINST 5090.1B, par 22-4.4, discusses laws that govern natural resources management relating to the protection and management of forest resources.

Additional Sources of Information

Cross Reference: Section 5.1.2, Additional Sources of Information; and
 Section 5.2.1, Additional Sources of Information.

5.3 Fish and Wildlife

Fish and wildlife management actions are designed to preserve, enhance, and manage indigenous wildlife and their habitats. These actions include the conservation of protected species and nongame species, management and harvest of game species, BASH reduction, and animal damage and disease control. Primary management issues for fish and wildlife at the NASP Complex are: (1) fisheries management; (2) wildlife habitat management; (3) threatened and endangered species and natural communities; (4) wildlife damage and disease control; and (5) BASH. Hunting is not authorized at the NASP

Complex because of NASP's longtime regard as a wildlife sanctuary and due to safety considerations. Some game species may inhabit certain areas but probably not in sufficient numbers to make hunting feasible.



General Information

The NASP Complex manages over 3,000 acres of unimproved lands, which provide habitat for numerous wildlife species, including threatened and endangered species. In addition, approximately 17 miles of shoreline occur at NASP and 1 mile occurs at NOLF Bronson. Between 1996 and 1997, the FNAI completed a rare plant, rare animal, and rare natural community inventory at the NASP Complex (FNAI 1997a,b,c). In addition, FNAI performed a survey of two coastal plants (*Chrysopsis godfreyi* and *Polygonella macrophylla*) in 1997 at the NASP Complex. These inventories concluded that the NASP Complex is within or approached by the ranges of at least 83 rare, threatened, endangered, or declining plant species and 67 rare, threatened, endangered, or declining vertebrate species. Thirty-six rare, threatened, or endangered species were found to occur at the NASP Complex; of these, 20 are afforded protective status (see Section 3.8.2; tables 3-3 and 3-4). In addition, 28 high quality natural communities representing 12 community types were identified at the NASP Complex during these surveys (see Section 3.8.1). Habitat management is the basis on which fish and wildlife programs are conducted, with artificial stocking (for fish only) and animal damage control serving only a minor role in the management scheme.

The objectives of the fish and wildlife management program at the NASP Complex are to protect, conserve, and manage fish and wildlife, and threatened and endangered species, as vital

elements of the ecosystem. Generally, species dependent on wetlands, fire, and sandhill communities have been the focus of fish and wildlife management at the NASP Complex. Fish and wildlife have benefited from forest management practices (i.e. prescribed burning), native landscaping, preservation of natural communities, and wetlands protection. Pro-active wildlife management activities have included:

- Management of Lake Frederic for recreational fishing through stocking and feeding programs;
- Trapping and removal of nuisance alligators;
- Nuisance wildlife control, including beaver and coyote trapping projects;
- Wetlands inventories and jurisdictional reviews;
- Implementing protection measures for the gopher tortoise;
- Completing a BASH plan;
- Conducting Area Osprey Restoration Project, 15 nest platforms have been erected on base;
- Administration of honeybee management program;
- Audubon Christmas Bird Counts;
- Establishing the A. C. Read Golf Course HCP; and
- Completion of biological surveys.

Current demands on wildlife resources and long-term needs for wildlife programs include the following:

- Recreational Fishing Program for freshwater lakes, ponds, and streams at the NASP Complex;
- Survey and protection program for neotropical migratory birds;
- Species protection and habitat development program;
- Surveys and protection program for threatened and endangered species and natural communities;
- Program to address wildlife damage and diseases;
- Nuisance wildlife monitoring and control program;
- Golf Course HCP revision and implementation; and
- BASH Plan revision and implementation.

5.3.1 Fisheries Management

Fisheries management includes activities to monitor and manipulate habitat and/or populations of fish species. Such activities include: stocking, feeding, and fertilizing ponds; providing for recreational fishing; controlling aquatic vegetation; and/or implementing water quality control programs.

Issues

Both freshwater and saltwater fishing are popular activities at the NASP Complex, and it is expected that the demand will increase. Lake Frederic, a small 1.2-acre pond located east of Sherman Cove, offers the only freshwater fishing opportunities at NAS Pensacola; therefore, it is very important to provide continued management to this area. Additional freshwater fishing opportunities at the NASP Complex include the beaver pond at NOLF Bronson and Eightmile Creek at Sauflay Field. These areas should be managed for recreational fishing. Due to the limited resources, the general public is not allowed access for fishing, except as accompanied guests.

Goals, Objectives, Strategies, and/or Projects

Table 5-10 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to fisheries management.

Table 5-10			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES , AND STRATEGIES RELATED TO FISHERIES MANAGEMENT			
Goals	Objectives	Strategies	Comments
4	4.2	4.2.2	Facilities for recreational fishing.

Long-Term Management

The long-term management concept for freshwater ponds and streams on the NASP Complex will be the enhancement of water quality and the establishment of recreational fishing opportunities. Selected freshwater ponds and streams will be managed for recreational fishing through stocking, feeding, and fertilization (see Project 21; Appendix A). Ponds and streams that may be used for recreational fishing purposes include Lake Frederic at NASP, the beaver pond at NOLF Bronson, and

Eightmile Creek at Sauflay Field. Long-term management of stormwater (see Section 5.1.4) and erosion control (see Section 5.1.3) will help maintain water quality in freshwater ponds and streams.

Environmental Considerations Relative to Management Practices

Potential adverse impacts to existing aquatic life from recreational fishing management.

Applicability of Other Management Issues and NASP Complex Programs

The following management issues, programs, and actions are directly or indirectly related to fisheries and will be consulted for additional management information or provided as additional training and education:

- Wetlands – Section 5.1.1 – water quality of adjacent waterbodies; and
- Stormwater – Section 5.1.4 – water quality in stocked waterbodies.

Ecosystem Management

Fisheries management is consistent with ecosystem management. Freshwater lakes, ponds, and streams will be managed for recreational fishing without adversely impacting native species or the environment.

Military Mission

Recreational fishing activities do not present a threat to the mission.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Fisheries Management

Executive Order 12962 directs Federal agencies to cooperate in conservation of aquatic resources and enhancement of opportunities for recreational fishing.

Endangered Species Act, 16 U.S.C. 35, 32 CFR 190, provides for the identification and protection of threatened and endangered species of fish, wildlife, and plants and their critical habitats. Requires federal agencies to ensure that no agency action is likely to jeopardize the continued existence of a threatened or endangered species.

Sikes Act, as amended 16 USC 670 a-o, requires each military department to manage fish and wildlife resources in accordance with a tripartite cooperative plan agreed to by the USFWS and state wildlife agency.

Magnuson-Stevens Fishery Conservation and Management Act, (1996 Reauthorization) 16 USC 1855(b), federal agencies must consult with the Secretary of Commerce on all activities, or proposed activities, authorized, funded, or undertaken by the agency, that may adversely affect EFH.

Fish and Wildlife Conservation Act, 16 U.S.C. 2901, encourages all federal departments and agencies to utilize their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities, to conserve and promote conservation of nongame fish and wildlife and their habitats.

Executive Order 13112, 3 February 1999, requires executive agencies to restrict the introduction of exotic organisms into natural ecosystems.

OPNAVINST 5090.1B, par 22-4.2, discusses laws that govern natural resources management relating to the protection and management of fish and wildlife resources.

Florida Statutes, Chapter 370.12, Florida Endangered and Threatened Species Act, is to conserve, protect, and manage the threatened and endangered species and their habitats.

Additional Sources of Information

Telephone Contacts:

FFWCC, Division of Freshwater Fisheries, Tallahassee, FL - (850) 488 0520

TNC Florida Office – (407) 682-3664

Internet Addresses:

Habitat Conservation Planning Handbook: <http://endangered.fws.gov/hcp/hcpbook.htm>

FFWCC: <http://fcn.state.fl.us/gfc/>

North Carolina State University: NCSU Aquatic Weed Management. Extension

Information: <http://www.cropsci.ncsu.edu/aquaticweeds/>

USACE, Waterways Experiment Station: <http://www.wes.army.mil/>

USFWS Panama City: <http://southeast.fws.gov/panamacity/index/html>

5.3.2 Wildlife Habitat Management and Threatened and Endangered Species

The goal of wildlife habitat management (as outlined on page 4-14) is to protect, maintain, and restore native communities for plant and animal life, while improving the quality of life and

ensuring the continuation of the military mission. The ecological integrity of wetland and upland communities will be maintained for the protection of native plant and animal species, including numerous federally and state listed species. Threatened, endangered, and species of special concern will be preserved and protected to ensure there is no reduction in species numbers or population sizes.

Wildlife Habitat Management

Wildlife habitat management consists of manipulating fish and wildlife habitat to change existing wildlife populations. Habitat enhancement may be accomplished by various silvicultural management tools, such as prescribed burning (see Section 5.2.1) in fire-dependent ecosystems, or by landscape alterations, such as planting native trees and shrubs in urban areas.

Issue

Many wildlife species rely on fire-dependent communities. Therefore, it is essential that the NASP Complex take an active role in habitat enhancement for wildlife, including threatened and endangered species. In addition, many wildlife species benefit from implementing basic xeriscaping principles (see Section 5.1.5).

Goals, Objectives, Strategies, and/or Projects

Table 5-11 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to wildlife habitat enhancement issues.

Table 5-11			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO WILDLIFE HABITAT ENHANCEMENT			
Goals	Objectives	Strategies	Comments
3	3.1	3.1.1	Habitat development and protection program.
3	3.1	3.1.2	Biological monitoring and habitat enhancement.
3	3.1	3.1.3	Golf course HPC.
3	3.2	3.2.1	Neotropical migratory bird survey.
3	3.2	3.2.2	Threatened and endangered species habitat.

Long-Term Management

Long-term habitat management concepts for wildlife habitat management that will be used at the NASP Complex are presented below. The NASP Complex will sustain existing natural communities for wildlife and enhance other ecosystems for urban and non-urban species using a combination of the following management concepts. These management concepts will be implemented under the direction of the NRM.

- Preserve portions of stands to provide suitable large snags and trees for den and cavity activities.
- Provide nest boxes/platforms for birds and bats, and prevent disturbance of known colonies.
- Leave brush material along woodland edges following necessary clearing (e.g. military mission).
- Plant trees and shrubs, or seed open areas for soil stabilization and wildlife habitat.
- Maintain pine stands with basal areas low enough to prevent crown closure in order to stimulate understory growth, which in turn creates food and cover.
- Prescribe burn on rotation through forest stands and wetland areas. Mosaic patterns, narrow-strip, or small-block burns will result in an interspersions of habitat types.
- Avoid habitat fragmentation. Although fragmentation increases edge, arbitrarily locating human-made linear and nonlinear features within wildlife areas undermines ecological processes through the separation of wildlife populations and may render the fragmented parcel unsustainable for wildlife.
- Work with adjacent land-owning agencies for protection of threatened and endangered species, such as working with GINS to reduce impacts to sea turtles (reduce outdoor lighting at NASP).
- Create or enhance connections between habitats to facilitate wildlife movement between areas. The necessary characteristics of connections will vary depending on the species; for instance, amphibians need water or moist areas to move between ponds and wet areas. Most vertebrates require protective cover (from predation) such as trees, shrubs, dense ground cover, downed trees, and existing burrows.
- Create brush piles in clear-cuts and other open areas. Brush piles provide areas for: nesting, feeding, and cover; a medium for plant growth; and a perch for songbirds whose droppings may contain viable seeds.
- Maintain vegetative buffers around wetland areas and along undeveloped shoreline areas adjacent to Bayou Grande, Pensacola Bay, Big Lagoon, and Perdido Bay.

- Leave snags and downed logs for nesting, roosting, foraging, cover, perching, and/or territorial displays.
- Maintain hardwood areas for foraging activities.

Environmental Considerations Relative to Management Practices

None.

Applicability of Other Management Issues and NASP Complex Programs

The following management issues and programs are directly or indirectly related to habitat management and will be consulted for additional management information:

- Wetlands – Section 5.1.1 – Wetlands and wetland buffers as wildlife habitat;
- Invasive species – Section 5.1.2 – Control measures and impacts of invasive species on threatened and endangered species;
- Landscaping and grounds maintenance – Section 5.1.5 – Use of xeriscaping to improve wildlife habitat in urban environments;
- Urban forestry – 5.1.7 – Urban forestry and wildlife habitat;
- Silviculture – Section 5.2.1 – Use of silvicultural activities to enhance wildlife habitat; and
- Using volunteer groups, including local Scout troops and interested Installation personnel, to offer hands-on training or individual participation to better demonstrate the concept, application, and importance of wildlife and habitat enhancement.

Threatened and Endangered Species and Natural Communities

Based on scientific and commercial data, species are listed as endangered or threatened if there is a current or threatened habitat loss, disease, over-exploitation, or other factors affecting its existence. The ESA was federally mandated in 1973 to provide a means to conserve endangered and threatened species and the habitats on which these species depend. The ESA also prohibits federal agencies from authorizing, funding, or carrying out any actions that destroy or adversely modify “critical habitat.” Critical habitat for a threatened or endangered species is defined as: (1) the specific areas within the geographical area occupied by the species at the time it is listed as threatened or endangered on which are found physical or biological features essential to the conservation of the

species, and which may require special management considerations or protection; and (2) specific areas outside the geographical areas occupied by the species at the time it is listed, upon a determination by the Secretary of Interior that such areas are essential for the conservation of the species. Additionally, the Florida Endangered and Threatened Species Act was state legislated to provide additional protection to species that may or may not be recognized for protection under the ESA.

As discussed in Section 3.2.3, 15 rare, threatened or endangered plants and 21 rare, threatened, or endangered vertebrates are known to occur at the NASP Complex (see tables 3-3 and 3-4; FNAI 1997a,b,c). In addition, 28 high quality natural communities representing the following 12 community types occur within the Complex (estuarine tidal marsh, scrub, mesic flatwoods, scrubby flatwoods, wet flatwoods, beach dune, baygall, wet prairie, blackwater stream, depression marsh, floodplain swamp, and seepage slope areas). These natural communities provide habitat for many wildlife species, including threatened and endangered species.

Issue

Listed species of plants and animals that occur at the NASP Complex require special protection efforts. Many factors may cause the need for a species to be listed as threatened or endangered, but the principal factors are associated with development and habitat destruction. Natural communities at the NASP Complex provide habitat for many protected species and require special protection and management. However, there are no areas designated as critical habitat for threatened and endangered species at the NASP Complex.

Goals, Objectives, Strategies, and/or Projects

Table 5-12 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to threatened and endangered species and natural communities.

Table 5-12			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO THREATENED AND ENDANGERED SPECIES AND NATURAL COMMUNITIES			
Goals	Objectives	Strategies	Comments
2	2.2	2.2.1	Effect of silvicultural practices to wildlife habitat.
2	2.2	2.2.2	Use of silvicultural practices to protect wildlife habitat.

Table 5-12			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO THREATENED AND ENDANGERED SPECIES AND NATURAL COMMUNITIES			
Goals	Objectives	Strategies	Comments
3	3.1	3.1.1	Habitat development and protection program.
3	3.1	3.1.2	Biological monitoring.
3	3.2	3.2.1	Neotropical migratory bird survey.
3	3.2	3.2.2	Threatened and endangered species habitat.

Long-Term Management

The NASP Complex will actively manage areas and natural communities to provide habitat for rare, threatened and endangered species that are known to occur at the Complex. In addition, the NASP Complex will manage for other federally or state listed threatened or endangered species as conditions warrant. Table 5-13 lists management recommendations for threatened and endangered species known to occur at the NASP Complex. Changes in management practices may result from: (1) the listing of a new species for protective status or the removal of a species; or (2) a change in species found to occur within the NASP Complex. The NASP Complex will continue to conduct species survey updates to identify changes in populations and habitat on the Installations. Species information provided in the surveys will be used to modify management practices. Modification to management practices will be administered by the NRM in consultation with SOUTHDIV foresters and fish and wildlife biologists, as well as other federal, state, and county agencies.

Table 5-13			
MANAGEMENT RECOMMENDATIONS BY FNAI FOR THREATENED AND ENDANGERED SPECIES AND SPECIES OF SPECIAL CONCERN AT THE NASP COMPLEX			
Scientific Name Common Name	Federal Status	State Status	Management Recommendations
Vertebrates			
<i>Alligator mississippiensis</i> American alligator	T (S/A)	SSC	Educate staff and visitors not to feed alligators.
<i>Egretta caerulea</i> Little blue heron	N	SSC	Observed at the beaver pond at NOLF Bronson. No active management is needed; the hydrology of the area should not be disturbed.
<i>Egretta thula</i> Snowy egret	N	SSC	Observed at the beaver pond at NOLF Bronson. No active management is needed; the hydrology of the area should not be disturbed.

Table 5-13

MANAGEMENT RECOMMENDATIONS BY FNAI FOR THREATENED AND ENDANGERED SPECIES AND SPECIES OF SPECIAL CONCERN AT THE NASP COMPLEX

<i>Scientific Name</i> Common Name	Federal Status	State Status	Management Recommendations
<i>Elanoides forficatus</i> American swallow-tailed kite	T	T	No management is recommended.
<i>Gopherus polyphemus</i> Gopher tortoise	N	SSC	Manage xeric uplands through prescribed burning during the growing season (every 2 to 5 years). Scrub should be burned in small patches to encourage a mosaic of vegetation density. Root-raking and windrowing should be avoided. Predators such as dogs, feral cats, and large numbers of raccoons should be controlled.
<i>Haematopus palliatus</i> American oyster catcher	N	SSC	This species utilizes undisturbed coastal areas and should be considered when evaluating any coastal management activities.
<i>Macrolemys temminckii</i> Alligator snapping turtle	C2 ¹	SSC	Due to its susceptibility to extirpation by poaching, close the northern portion of Sauflay Field to unauthorized public use.
<i>Pandion haliaetus</i> Osprey	N	SSC	Continue efforts to lure nesting pairs away from antenna fields (NASP) by installing nearby platforms.
<i>Pelecanus occidentalis</i> Brown pelican	N	SSC	Close spoil island north of Magazine Point to all use during spring and summer nesting period. Feral dogs and cats, foxes, and raccoons should be removed from Magazine Point to limit nest predation. In addition, this species utilizes undisturbed coastal areas and should be considered when evaluating any coastal management activities.
<i>Rynchops niger</i> Black skimmer	N	SSC	Close spoil island north of Magazine Point to all use during spring and summer nesting period. Feral dogs and cats, foxes, and raccoons should be removed from Magazine Point to limit nest predation. In addition, this species utilizes undisturbed coastal areas and should be considered when evaluating any coastal management activities.
<i>Sterna antillarum</i> Least tern	N	T	Close spoil island north of Magazine Point to all use during spring and summer nesting period. Feral dogs and cats, foxes, and raccoons should be removed from Magazine Point to limit nest predation. In addition, this species utilizes undisturbed coastal areas and should be considered when evaluating any coastal management activities.
Plants			
<i>Drosera intermedia</i> Spoon-leaf sundew	N	T	Use growing season prescribed burns in wet prairies to limit woody vegetation encroachment. Prevent damage to soils and hydrologic alterations that may be caused by draining, ditching, off-road vehicle use, and logging activities. Prohibit off-road vehicle use on trails at Sauflay Field.
<i>Lilium catesbaei</i> Southern red lily	N	T	Maintain natural hydrologic regimes by restricting further ditching, draining, off-road vehicle use, and logging activities. Use prescribed growing-season fire to reduce shrub encroachment, reduce nutrients bound up in standing vegetation, promote flowering and fruiting, and facilitate seed germination.
<i>Pinguicula planifolia</i> Chapman's butterwort	C2 ¹	T	Maintain hydrology of the seepage slope at the northwest corner of Sauflay Field. Prescribed, growing-season fires would limit woody species encroachment and promote successful regeneration of desirable species.
<i>Pinguicula primuliflora</i> Primrose-flowered butterwort	N	E	Maintain the gradual flow of water supporting seepage areas by protecting surrounding uplands from logging and other potential erosion-causing activities. Use periodic, growing-season, prescribed fires to reduce encroachment of woody species.

Table 5-13

MANAGEMENT RECOMMENDATIONS BY FNAI FOR THREATENED AND ENDANGERED SPECIES AND SPECIES OF SPECIAL CONCERN AT THE NASP COMPLEX

<i>Scientific Name</i> Common Name	Federal Status	State Status	Management Recommendations
<i>Platanthera blephariglottis</i> White-fringed orchid	N	T	Located on the southwest corner of the clear-zone for the east/west runway of Forrest Sherman Field. Maintain hydrology by avoiding plowlines, off road vehicle traffic, draining, and further ditching. The use of fire to maintain an open, herbaceous clear-zone in this area is recommended rather than the continued use of mechanical methods, such as mowing.
<i>Platanthera nivea</i> Snowy orchid	N	T	Use growing season prescribed burns in wet prairies to limit woody vegetation encroachment. Prevent damage to soils and hydrologic alterations that may be caused by draining, ditching, and off-road vehicle use.
<i>Polygonella macrophylla</i> Large-leaf jointweed	C2 ¹	T	Allow natural fires to burn through scrub and to the coast when possible. Protect and develop management strategies for sites dominated by sand pine.
<i>Sarracenia leucophylla</i> White-top pitcher-plant	C2 ¹	E	Throughout the Complex, use growing season prescribed burns in wet prairies to limit woody vegetation encroachment. Prevent damage to soils and hydrologic alterations that may be caused by draining, ditching, bedding, logging activities, and off-road vehicle use. In addition, use growing season prescribed burns in upland pine areas (containing seepage areas) at Saufley Field.
<i>Sarracenia psittacina</i> Parrot pitcher-plant	N	T	Use growing season prescribed burns to limit encroachment by woody species and aid in successful reproduction of herbs. Maintain hydrologic regime of sensitive areas by avoiding bedding, ditching, off-road vehicle use, and logging activities.
<i>Sarracenia purpurea</i> Purple pitcher-plant	N	T	Use growing season prescribed burns in wet prairies to limit woody vegetation encroachment. Prevent damage to soils and hydrologic alterations that may be caused by draining, ditching, bedding, logging activities, and off-road vehicle use.

Source: FNAI 1997a,b,c

1 No federally- or state-listed threatened or endangered species were found to occur at NTTCC Corry (FNAI 1997c). See above.

KEY:

E=Endangered; T=Threatened; T(S/A)=Threatened due to Similarity of Appearance; C=Candidate; SSC=Species of Special Concern;

N=Not listed; and P=Proposed for Listing.

The NASP Complex annually will monitor populations of the flatwoods salamander (presently not known to occur at the NASP Complex), gopher tortoises, bird species (including the piping plover) and protected plants (including SAVs). For additional threatened or endangered species or species determined by the NRM as desirable, the NRM will undertake measures, as appropriate, to ensure activities and actions conducted within the NASP Complex are not detrimental to the species or habitats on which they depend.

At the NASP Complex, species dependent upon wetlands and fire-dependent communities are the focus of management. Natural communities and other wildlife habitats will be managed to sustain and enhance fish and wildlife resources on the Installation consistent with the military mission. Management techniques for natural communities are discussed below.

Estuarine tidal marsh requires little active management other than protection from disturbance and maintenance of the natural hydrology (FNAI 1997a).

Scrub communities in the Florida panhandle may respond positively to a relatively infrequent burning schedule. The fire management plan for scrub at NASP should be flexible to allow for new ideas resulting from management research (FNAI 1997a).

Mesic flatwoods, scrubby flatwoods, wet flatwoods, and seepage slopes should be burned during the growing season every 2 to 5 years. To control the upslope invasion of wetland species, prescribed burning to the uplands should be allowed to spread into or through adjacent wetland communities. Soil disturbances should be minimized and natural fire breaks should be used where practicable (FNAI 1997a).

Beach dune communities require little active management, except protection from foot and vehicular traffic (FNAI 1997a).

Baygall and depression marshes should be allowed to burn periodically. Fire breaks should not be used around these areas so that fire can either extinguish naturally or burn through the community (FNAI 1997a).

Wet prairies should be burned during the growing season to limit encroachment by woody species and aid in successful reproduction of herbs. It is also important to maintain the hydrologic regime of the sites by avoiding bedding, ditching, logging activities, and off-road vehicle use in wetlands (FNAI 1997a).

Blackwater streams should be protected from siltation and toxic runoff. Maintaining the natural vegetation around the stream will provide a natural barrier to such degrading factors (FNAI 1997c).

Floodplain swamps should be protected, but require no active management.

Seagrass beds should be managed by preservation and protection in their natural state (FNAI and FDNR 1990)

Environmental Considerations Relative to Management Practices

Management practices to enhance habitat for one species may actually decrease habitat for other species.

Applicability of Other Management Issues and NASP Complex Programs

The following management issues, programs, and actions are directly or indirectly related to threatened and endangered species and natural communities and will be consulted for additional management information or provided as additional training and education:

- Wetlands – Section 5.1.1 – Buffers around wetlands, prescribed burning in wetlands;
- Invasive species – Section 5.1.2 – Control measures and impacts of invasive species on threatened and endangered species;
- Prescribed burning – Section 5.2.1 – Use of prescribed burning in natural communities;
- Thinning – Section 5.2.1 – Impacts of thinning on threatened and endangered species; and
- Using volunteer groups, including local Scout troops and interested Installation personnel, to offer hands-on training or individual participation to better demonstrate the concept, application, and importance of wildlife and habitat enhancement.

Ecosystem Management

The concepts presented in this section are consistent with ecosystem management. By effectively managing wildlife habitats and natural communities on the NASP Complex, it is not only enhancing wildlife communities, but may also be providing opportunities for new species, including migratory species, to thrive. For example, increasing gopher tortoise habitat may also benefit other species, such as the gopher frog, eastern indigo snake, and pine snake, which often utilize gopher tortoise burrows for cover.

Military Mission

Without a complete understanding of impacts on fish and wildlife species, especially threatened and endangered species, actions and activities implemented by the NASP Complex may counter federal or state legal requirements and thus threaten the continuation of the military mission. For example, the USFWS or FDEP could halt any development or training affecting a threatened or endangered species.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Wildlife Management and Threatened and Endangered Species

Endangered Species Act, 16 U.S.C. 35, 32 CFR 190, provides for the identification and protection of threatened and endangered species of fish, wildlife, and plants and their critical habitats. Requires federal agencies to ensure that no agency action is likely to jeopardize the continued existence of a threatened or endangered species.

Migratory Bird Treaty Act, as amended 16 USC 703-712, prohibits the taking or harming of a migratory bird, its eggs, nests, or young without the appropriate permit.

Sikes Act, as amended 16 USC 670 a-o, requires each military department to manage fish and wildlife resources in accordance with a tripartite cooperative plan agreed to by the USFWS and state wildlife agency.

Marine Mammal Protection Act of 1972, 16 USC 1361-1407, prohibits the taking or harming of marine mammals without the appropriate permit.

Magnuson-Stevens Fishery Conservation and Management Act, (1996 Reauthorization) 16 USC 1855(b), federal agencies must consult with the Secretary of Commerce on all activities, or proposed activities, authorized, funded, or undertaken by the agency, that may adversely affect EFH.

Fish and Wildlife Conservation Act, 16 U.S.C. 2901, encourages all federal departments and agencies to utilize their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities, to conserve and promote conservation of nongame fish and wildlife and their habitats.

Executive Order 13112, 3 February 1999, requires executive agencies to restrict the introduction of exotic organisms into natural ecosystems.

OPNAVINST 5090.1B, par 22-4.2, discusses laws that govern natural resources management relating to the protection and management of fish and wildlife resources.

Florida Statutes, Chapter 370.12, regulates the taking, killing, destroying, harassing, disturbing, and molesting of any marine turtle.

Florida Statutes, Chapter 370.12, Florida Endangered and Threatened Species Act, is to conserve, protect, and manage the threatened and endangered species and their habitats.

Additional Sources of Information

Technical Reports/Publications:

Myers, R., and J. Ewel. 1990 *Ecosystems of Florida*.

Drew, M.B., L.K. Kirkman and A.K. Gholson. (1998). *The Vascular Flora of Ichauway, Baker County, Georgia: A Remnant Longleaf Pine/Wiregrass Ecosystem*. Castanea. 63:1-24.

Woodworking for Wildlife, Homes for Birds & Mammals, prepared by Non-game Wildlife Section, Minnesota Department of Natural Resources (1-800-657-3757).

Telephone Contacts:

FNAI – (850) 224-8207

The Wildlife Society – (301) 897-9770

TNC Florida Office – (407) 682-3664

Internet Addresses:

Habitat Conservation Planning Handbook: <http://endangered.fws.gov/hcp/hcpbook.htm>

FFWCC: <http://fcn.state.fl.us/gfc/>

USFWS: <http://www.fws.gov/>

Effects of Fire on Threatened and Endangered Plants:
<http://fire.r9.fws.gov/ifcc/T&EPlants/T&EPlants.htm#Abstract>

Fire Effects on Plants and Wildlife: <http://www.fs.fed.us/database/feis/>

Prevention and Control of Wildlife Damage and Wildlife Diseases and Humans:
<http://www.ces.ncsu.edu/nreos/wild/wildlife/prevent.html>

North Carolina State University: NCSU Aquatic Weed Management. Extension Information: <http://www.cropsci.ncsu.edu/aquaticweeds/>

USACE, Waterways Experiment Station: <http://www.wes.army.mil/>

Warnell School of Forestry Resources – Making Rooftops Home: Rare Atlantic Shorebirds Struggle to Adapt (Least Tern)

http://www.forestry.uga.edu/warnell/research/least_tern.html

Biological Control for Aquatic and Wetland Weeds: <http://aquat1.ifas.ufl.edu/biocontrol.html>

Biological Control Virtual Information Center: <http://wric.ucdavis.edu/exotic/exotic.htm>

Jacksonville Corps of Engineers, Aquatic Plant Control Section:
http://www.saj.usace.army.mil/conops/apc/apc_page.html

5.3.3 Wildlife Damage and Diseases and Nuisance Wildlife

Prevention and Control of Wildlife Damage and Diseases

Wildlife diseases are defined as those transferred between wildlife species, and/or diseases transferred directly or indirectly from wildlife species to humans.

Issue

Wildlife diseases can cause significant illness and death to individual animals and can significantly affect wildlife populations. Wildlife species can also serve as natural hosts for certain diseases that affect humans (zoonoses). The disease agents or parasites that cause these zoonotic diseases can be contracted directly from wildlife by bites or contamination or they can be contracted indirectly through the bite of arthropod vectors such as mosquitoes, ticks, fleas, and mites (McLean 1994).

Goals, Objectives, Strategies, and/or Projects

Table 5-14 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to wildlife damage and diseases.

Table 5-14			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO WILDLIFE DAMAGE AND DISEASES			
Goals	Objectives	Strategies	Comments
3	3.3	3.3.1	Nuisance wildlife control.

Long-Term Management

The NASP Complex will have a long-term management policy of public awareness (e.g. informing employees and visitors) for wildlife-related diseases. Management will focus on, but will not be limited to, the following issues:

- Knowledge of the diseases in the area and the specific times of year that present the greatest risk of exposure;
- Knowledge of and recognition of early symptoms of diseases and the condition of exposure;

- The use of extreme caution when approaching or handling a wild animal, especially one that looks sick or abnormal;
- The use of protective measures against fungal diseases where there is an accumulation of animal feces (e.g. under a bird roost);
- Protection from vector-borne disease in high-risk areas using measures such as mosquito or tick repellent, or wearing special clothing; and
- Reduction in host populations and their ectoparasites.

Literature on wildlife diseases and humans can be found in a series of articles provided by the University of Nebraska Cooperative Extension Service, Great Plains Agricultural Council, and the USDA (see McLean 1994; <http://www.ces.ncsu.edu/nreos/wild/wildlife/prevent.html>).

Environmental Considerations Relative to Management Practices

Effects of control measures on non-target species and the environment.

Applicability of Other Management Issues and NASP Complex Programs

The following management issues, programs, and actions are directly or indirectly related to the management of wildlife disease and will be consulted for additional management information or provided as additional training and education:

- PMP; and
- Nuisance Wildlife Management (see Project No. 16, Appendix A).

Nuisance Wildlife and BASH

Issue

Animals such as mice and rats, raccoon, opossum, armadillo, coyote, and squirrel may cause problems in urban/developed areas (such as when they occur in high numbers or in certain locations), and may be considered nuisance wildlife under such circumstances. Some birds, such as house sparrows, starlings, pigeons, grackles, and crows, may also be considered nuisance wildlife in some instances. The NASP Complex would like to encourage non-game wildlife in urban areas, but control nuisance species. In addition, deer and bird populations, especially in the vicinity of runways, must be minimized and controlled to prevent BASH-related incidents.

Due to resident and migratory bird and animal populations at NASP and its vicinity, a BASH exists. Bird strikes at and in the vicinity of NASP have resulted in: cracked and shattered windshields; dented and fractured wings, fuselages, and tail sections; engine failures and aborted takeoffs; and damaged landing gear (Spence 1995). There were 45 strike reports submitted by NASP from July 1990 to July 1998 (NASP Instruction 3751.1C).

Goals, Objectives, Strategies, and/or Projects

Table 5-15 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to wildlife damage issues.

Table 5-15			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO NUISANCE WILDLIFE			
Goals	Objectives	Strategies	Comments
1	1.6	1.6.1, 1.6.2	Landscape management and xeriscaping.
3	3.3	3.3.1	Nuisance wildlife control.
3	3.3	3.3.2	BASH Plan.
3	3.3	3.3.3	Pest management.

Long-Term Management

The NASP Complex will continue to monitor the health and size of animal populations and control nuisance species as needed. In the event that the NASP Complex identifies a wildlife conflict, a damage control program will be established. The program will have four parts (Dolbeer *et al.* 1994):

1. **Problem definition:** to determine the species and number of animals causing the problem, the amount of loss or nature of the conflict, and other biological and social factors related to the problem;
2. **Ecology of the problem species:** to understand the life history of the species, especially in relationship to the conflict;
3. **Control method:** takes the information gained from parts 1 and 2 and develops an appropriate management program to alleviate or reduce the conflict; and
4. **Evaluation of control:** assesses the reduction in damage in relation to costs and impact of the control on target and non-target populations and the environment.

Information on damage prevention and control methods for wildlife species can be found in a series provided by the University of Nebraska Cooperative Extension Service, Great Plains Agricultural Council, and the USDA. The series is located at: <http://www.ces.ncsu.edu/nreos/wild/wildlife/prevent.html>.

The BASH plan for the NASP Complex consists of “passive” and “active” methods to help control birds and minimize bird strikes at, and around, airfields. The NASP Complex will manage all habitats surrounding an airfield, natural or man-made, in such a way as to discourage bird/animal hazards. The NASP Complex will determine the management practices that will best discourage birds/animal from flying/congregating in areas likely to cause problems, and implement those management practices. Wildlife occurs at or near airfields generally because of food, water, or shelter, and/or because of local migrations. By managing areas to be less attractive to nuisance wildlife, it is possible to reduce hazards. Thorough and periodically updated ecological studies of airfields and their vicinity are vital to reduce BASH.

Birds/animals may be discouraged from the vicinity of the airfield using various techniques. Guidelines for dispersing birds/animals from the airfield are provided below.

- Bio-acoustics are taped distress or alarm calls of actual birds. The equipment required to adequately project these calls include a cassette tape deck and a speaker that can be mounted on the exterior of a vehicle. Special care must be taken to play in short intervals to prevent habituation by the birds. Play the tape for 20 to 30 seconds and then pause briefly. Repeat the procedure several times if necessary. The birds should respond by taking flight or becoming alert. These calls are effective for gulls, blackbirds, starlings, crows, and some shorebirds. If the birds become familiar with the tape, it should be reinforced with pyrotechnics. Noise can also effectively deter animals.
- Pyrotechnics are loud explosive devices, resembling a fire cracker, that are launched from assorted firearms. For example, some cartridges are 12-gauge and fired from a 12-gauge shotgun while others are smaller and fired from a pyrotechnic pistol. The cartridges are fired near birds or animals to scare them from the area. Pyrotechnics are to be used in conjunction with bio-acoustics. Playing the tape and launching the cartridges will be done simultaneously.
- Depredation is sometimes necessary. Birds/animals must be killed occasionally as a reinforcement of other methods. Domestic pigeons, European starlings, and house sparrows can be killed without a permit. Guidelines for animal control are provided in NASP Instruction 3751.1C (BASH Plan). Depredation should be used if pyrotechnics have become ineffective.

Ultrasound, rubber snakes, stuffed owls, rotating/flashing lights, loud music, and other such devices have been proven ineffective. Driving vehicles through a flock of birds is also ineffective. This technique works temporarily, but the birds will circle around and land in the original area. Eliminating birds from hangars and reducing airfield habitat will be done as on-going management.

In 1998 it was reported that the 11th Circuit U.S. Court of Appeals determined the Migratory Bird Treaty Act (MBTA) does not apply to the federal government and its employees acting in their official capacities. Additional judicial decisions also have addressed the issue, creating confusion regarding the scope and applicability of the “exemption” created by the 11th Circuit. Potentially, this would mean that Installations wishing to “take” birds as part of pest control operations would no longer have to apply for depredation permits from the USFWS. Installations are advised to proceed with caution and continue coordinating with the USFWS until the matter is definitively resolved (U.S. Army Environmental Center, 1998).

Environmental Considerations Relative to Management Practices

Impacts on non-target species and the environment. Several bird species near the airfield are protected. Migratory birds and certain other birds, are protected under the MBTA.

Applicability of Other Management Issues and NASP Complex Programs

The following management issues, programs, and actions are directly or indirectly related to the management of nuisance wildlife and BASH, and will be consulted for additional management information or provided as additional training and education:

- PMPs – see Section 2.5.4 – nuisance wildlife;
- BASH Program - See Project No. 17, Appendix A;
- Wetlands – Section 5.1.1 – habitat for birds;
- Landscaping and grounds maintenance – Section 5.1.5 – areas around airfields; and
- Urban forestry – Section 5.1.7 – effects on wildlife.

Ecosystem Management

Species damaging the human environment are frequently receiving supplemental food as part of the damage. This supports abnormally elevated populations of the damaging species, which has deleterious effects on other components of the ecosystem. Returning the species to normal population levels while controlling the damage is consistent with ecosystem management concepts. Ecosystems in the vicinity of airfields will be managed as to minimize bird/animal aircraft strikes.

Military Mission

Nuisance wildlife and/or the outbreak of disease on the Installation could pose a threat to implementation of the military mission through the infection of military personnel and/or the consequent limitation of access to areas of the Installation to control a problem. BASH is a serious issue and can potentially threaten the military mission by causing accidents both in the air and on the runway. Accidents may cause equipment damage as well as bodily harm to aircraft personnel.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Wildlife Damage and Diseases and Nuisance Wildlife

Endangered Species Act, 16 U.S.C. 35, 32 CFR 190, provides for the identification and protection of threatened and endangered species of fish, wildlife, and plants and their critical habitats. Requires federal agencies to ensure that no agency action is likely to jeopardize the continued existence of a threatened or endangered species.

Migratory Bird Treaty Act, as amended 16 USC 703-712, prohibits the taking or harming of a migratory bird, its eggs, nests, or young without the appropriate permit.

Forest Pest Suppression Memorandum of Agreement between the Department of Agriculture and DoD, 11 December 1990, is the planning, coordination, and execution of field operations to prevent and suppress damaging forest insects and disease outbreaks.

NASP Instruction 3751.1C, provides guidance for bird/animal strike hazard reduction and establishes areas of responsibility for bird control, bird hazard warning conditions, and local aircraft bird avoidance operating procedures.

Additional Sources of Information

Telephone Contacts:

Richard Russel, USFWS: (404)221-3588

Navy Safety Center, Norfolk, VA – DSN 564-6435

Eglin Air Force Base – (850)882-4164

Internet Addresses:

Wildlife damage and diseases information provided by the University of Nebraska Cooperative Extension Service, Great Plains Agricultural Council, and the USDA:
<http://www.ces.ncsu.edu/nreos/wild/wildlife/prevent.html>

Nuisance Wildlife Control Information: <http://www.aphis.usda.gov/ws>.

USGS National Wildlife Health Center Web: <http://www.emtc.usgs.gov/nwhhome.html>.

Wildlife Disease/Health Related Links:
http://www.emtc.nbs.gov/http_data/whip/links.html

Nuisance Wildlife Control Information: <http://www.aphis.usda.gov/ws>.

U.S. Air Force BASH: <http://www-afsc.saia.af.mil/AFSC/Bash/home.html>

5.4 Outdoor Recreation

For the purposes of this INRMP, outdoor recreation is defined as the use of natural resources, including indoor interpretive centers, where the primary focus is on the understanding and application of the natural environment. Outdoor recreation includes nature trails, picnic and camping areas, consumptive and non-consumptive uses of natural resources, establishment and management of recreational trails, scenic rivers, equestrian areas, the use of off-road vehicles, as well as other uses of natural resources. It does not include other highly developed outdoor uses such as golf courses, tennis courts, ball/athletic fields, or swimming pools. Outdoor recreation opportunities are dependent upon the natural environment and can be classified as concentrated or dispersed.



- **Concentrated recreation opportunities** refer to those activities where users concentrate in a specific area (e.g. picnicking, camping, fitness trails, archery, interpretive centers).
- **Dispersed recreation opportunities** refer to those activities where the user moves about through the area (e.g. hiking, boating).

General Information

The MWR Department is the primary entity responsible for maintaining and developing outdoor recreational activities on the Complex. Most of the programs and facilities maintained by MWR have been established for many years. The NASP Complex's Environmental Division reviews and provides recommendations and guidance for all new projects proposed by MWR.

NPS completed Outdoor Recreation Management plans for selected properties within the NASP Complex in 1999. These plans contain detailed information on dispersed and concentrated outdoor recreational opportunities, and are available from the NRM.

Information pertaining to specified outdoor recreational opportunities at the NASP Complex is provided in Appendix C. Tables C-1 and C-2 list concentrated and dispersed outdoor recreational opportunities at NASP; tables C-3 and C-4 list concentrated and dispersed outdoor recreational opportunities at Corry Station and BARP (NOLF Bronson); and tables C-5 and C-6 list concentrated and dispersed outdoor recreational opportunities at Saufley Field.

In addition to recreational opportunities available at the NASP Complex, the Pensacola area has numerous outdoor recreational opportunities including boating, fishing, biking, camping, and hiking. There are numerous public lands in the vicinity of the NASP Complex that possess outdoor recreational opportunities including Blackwater River State Park, Blackwater River State Forest, Fort Pickens and other areas of GINS, and the Perdido Pitcher Plant Prairie.

Issue

According to Florida's State Comprehensive Outdoor Recreation Plan (SCORP), the most popular outdoor activities in the West Florida region include coastal beach activities, bicycle riding, saltwater fishing (by boat), picnicking, hiking, and visiting archaeological/historical sites. All are outdoor recreation opportunities that are provided at the NASP Complex. Nature based tourism or "ecotourism" is also popular, as are Watchable Wildlife programs.

Information pertaining to the demand for outdoor recreational activities at the NASP Complex is limited. However, the demand for outdoor recreational opportunities at the Complex is expected to increase. A participant survey is necessary to determine demand for specific outdoor recreational opportunities and to provide the detailed information needed for future planning.

Goals, Objectives, Strategies, and/or Projects

Table 5-16 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to recreational opportunities issues.

Table 5-16			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES RELATED TO OUTDOOR RECREATIONAL OPPORTUNITIES			
Goals	Objectives	Strategies	Comments
4	4.1	4.1.1	Development of baseline information pertaining to natural resources -based outdoor recreation.
4	4.1	4.1.2	Recreational and interpretive trail development.
4	4.1	4.1.3	Expansion of outdoor recreational opportunities.

Long-Term Management

The Outdoor Recreation Plans prepared by the NPS (1999a,b,c) for the NASP Complex contain numerous management recommendations for outdoor recreation at the NASP Complex. Using the NPS documents as a guide, the NASP Complex should survey existing outdoor recreational opportunities and usage, and continue to develop outdoor recreational opportunities that do not adversely affect natural systems. MWR will seek guidance from the NRM to insure that new projects do not negatively impact the natural environment.

Recommended natural resources projects proposed by the NPS include:

- Continued cooperation with Gulf Island National Seashore to preserve existing cultural and natural resources;
- Implement and maintain appropriate ecosystem management practices, and continue efforts to protect areas with significant natural resources(i.e. protected plant or animal communities);
- Look at existing natural communities for potential environmental interpretation areas;
- Initiate public access from NOLF Bronson to the Perdido Pitcher Plant Prairie;
- Utilize visitor surveys to determine if the existing fishing opportunities are meeting the needs of the users. If the need exists, consider additional areas for fishing opportunities (i.e. the old water survival-training pier);
- Consider a user fee/permit for fishing. Consult with State and Federal fisheries experts to determine carrying capacities;
- Develop a base-wide multi-purpose/mountain bike trail throughout the natural resources managed areas at the Complex;
- Establish a system of promoting the use of all nature trails. Make information on these areas more readily available to the public;
- Encourage expanded non-motorized boating use of Bayou Grande;
- Follow the proper procedures to have Trout Point established as a Watchable Wildlife Area, and evaluate other areas suitable for including in the Watchable Wildlife Program;
- Develop access from Corry Housing to the Jones Swamp Preserve by constructing marked pathways to US Hwy 98, crossing points at the Pensacola Junior College and U.S. Naval Hospital traffic signals;
- Develop a handicapped accessible nature trail leading off from the existing handicapped accessible picnic site at the Family Picnic Center on Bayou Grande;

- Develop an outdoor education/interpretation program which is centered around the existing nature trails, Trout Point and Bayou Grande, specifically. Plan to include other significant natural and cultural resources as the program grows;
- Contact State and National Park naturalist/interpreter for outdoor interpretive assistance;
- Reestablish the old abandoned swimming pool at BARP for freshwater fishing and implement a management program for feeding the fish and maintaining the area;
- Promote fishing opportunities at BARP. Work with MWR personnel to develop and implement special promotional activities;
- Revise the fishing/hunting regulations for the NASP Complex to reflect regionalization;
- Develop the utility right-of-ways at BARP into multi-purpose trails, that could be used for hiking, bicycling and nature study;
- Develop connector trails from BARP at NOLF Bronson leading to the beaver pond and to the adjacent Tarkiln Bayou State Park;
- Evaluate the problems with beach erosion at BARP and develop a solution for eliminating the problem;
- Develop an outdoor education/interpretation program at BARP focusing on the cultural resources at the park and on the natural resources near by at NOLF Bronson and at the Tarkiln Bayou State Park. Establish multi-purpose trails with interpretive signs leading to these areas;
- Research the possibility of developing a ropes course at the NASP Complex;
- Develop an orienteering program in the natural resources areas at BARP;
- At Sauflay Field, begin efforts to establish a developed trail to Elevenmile Creek utilizing the existing abandoned railroad corridor, and to Perdido Bay utilizing the drainageway;
- Develop a network of multi-purpose trails connecting the existing Sauflay Nature Trail with the trail leading to Elevenmile Creek;
- Constitute a formal request procedure for all calls concerning the use of the Sauflay Nature Trail;
- Use the resources available through the Escambia County School District volunteer groups to develop promotional brochures and other projects, such as the Bird Box/Wildlife walking tour;
- Follow the proper procedures to have the Sauflay Nature Trail area formally established as a Watchable Wildlife Area;
- Encourage groups, in addition to the Scouts, to use the primitive camping sites on the Sauflay Nature Trail. Also, contact the local Scout masters for assistance in maintaining the sites. Utilize the same call-in procedures for the campsites that will be used for the nature trail;

- At Saufley Field, promote the existing jogging and fitness trails. Develop a map designating each trail and make it readily available to users and potential users. Place sign-in sheets at trail heads to get an estimate of use; and
- Develop an outdoor education/interpretation program focusing on the natural resources around the Saufley Nature Trail.

Public access is defined herein as the right of the general public to enter and use Installation facilities. The Sikes Act requires that sustainable use by the public of natural resources take place to the extent that the use is not inconsistent with the needs of the fish and wildlife resources. Currently, public access is limited at the NASP Complex. The general public is allowed access to: all NPS areas; cultural resources areas such as the Presidio Santa Maria de Galvé and the Pensacola Lighthouse; the Sunec-ke Nature Trail, Bayou Grande Nature Trail, and Trout Point Nature Trail at NASP; and Saufley Field Nature Trail at Saufley Field. In addition, the public has limited access to the MWR jogging/fitness trail and to Bayou Grande and Saufley Field primitive camping areas on a reservation basis. NOLF Bronson is open to the public by special request and scout groups are allowed access to primitive camping areas at BARP. Due to the relatively high current level of outdoor recreation by military personnel at the NASP Complex, additional public access to outdoor recreational areas at the NASP Complex would likely cause detrimental effects to the natural environment.

Environmental Considerations Relative to Management Practices

Environmental considerations will depend on the type and location of facility development, but may include impacts to terrestrial and aquatic wildlife species and habitats, water quality, and soils.

Applicability of Other Management Issues and NASP Complex Programs

The following management issues, programs, and actions are directly or indirectly related to the management of outdoor recreation and will be consulted for additional management information or provided as additional training and education:

- Habitat enhancement – Section 5.3.2 – Interpretive Nature Trails and Primitive Camping (see Projects 18 and 19; Appendix A);

- Silvicultural practices – Section 5.2.1 – impacts of silvicultural practices on outdoor recreation;
- Using volunteer groups, including local Scout troops and interested Installation personnel, to offer hands-on training or individual participation in the development of outdoor recreational facilities.

Ecosystem Management

Ecosystem management practices are enhanced by environmental stewardship and by educating the general public about environmental conservation issues, problems, and solutions. By providing natural recreational and educational opportunities on the Installation, the NASP Complex will help create and enhance public awareness of vital environmental resources issues, thus providing a regionally limited educational resources. In addition, using volunteer groups and/or Installation personnel for the physical construction of recreational and educational facilities, provides opportunities for educating group members on the values and characteristics of a healthy environment, and on the problems and solutions associated with human use of the environment.

Military Mission

Outdoor recreational opportunities are dependent upon the environment and the security and safety constraints of the military mission. Outdoor recreational opportunities must be developed and used consistently with the sustainability of the land. The over-utilization or improper location of an outdoor recreation area could impact natural resources and the military mission.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Outdoor Recreation

Sikes Act and Improvement Act of 1997, 16 U.S.C. 670a(b)(1)(G), requires public access to a military Installation for the necessary, appropriate, and sustainable use of natural resources by the public to the extent that the use is not inconsistent with the needs of the fish and wildlife resources or with safety and military security.

Outdoor Recreation – Federal/State Program Act, 16 U.S.C. 460 P-3, defines a program for managing lands for outdoor recreation.

National Historic Preservation Act, 16 U.S.C. 470-470m.

Executive Order 11989 - *Use of Off-Road Vehicles on Public Lands*.

National Environmental Policy Act, 42 U.S.C. 4321, 31-4335, and 4341, 4347.

DODDIR 6050.2 – *Use of Off-Road Vehicles on DOD Lands*.

NAVFAC MO – 100.4, Outdoor Recreation and Cultural Values.

Memorandum of Understanding between the Department of the Interior and the Department of Defense for the Development of Public Outdoor Recreation Resources on Military Installations, 7 April 1978.

DODDIR 4715.3 of May 1996, Environmental Conservation Program.

SECNAVINST 6240.6E, Environmental Protection and Natural Resources.

NAVFAC P-73, Volume II, Natural Resources Management Procedural Manual.

OPNAVINST 5090.1B, par 22-4.5, discusses natural resources management relating to the protection and management of outdoor recreational resources.

32 CFR 190, Natural Resources Management Program.

Additional Sources of Information

Telephone Contacts:

FDEP, Division of Recreation and Parks -(850) 488-6321

NPS, Southeast Region, Recreation and Conservation Division- (404) 562-3175

GINS – (850) 934-2604

5.5 Land Impact Guidelines

Land impact is defined herein as an activity (e.g. construction of buildings, infrastructure facilities, training or other human-made structures) which has the potential for an adverse affect on the function of ecosystems at the NASP Complex.

Issue

Due to the ecological importance of natural ecosystems found at the NASP Complex, the Complex needs to establish and follow land improvement guidelines that support the military mission, while minimizing adverse impacts to the Installation’s environmental and ecological resources.

Goals, Objectives, Strategies, and/or Projects

Table 5-17 presents the natural resources management goals, objectives, and strategies (see Section 4) that are most directly relevant to land impact guidelines.

Table 5-17			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES , AND STRATEGIES RELATED TO LAND IMPACT GUIDELINES			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.1	Stormwater management.
1	1.1	1.1.2	Soil erosion control management.
1	1.1	1.1.4	Wetland buffers.
1	1.3	1.3.1	Floodplain restraints.
1	1.4	1.4.1	Land disturbance policies.
3	3.1	3.1.1	Habitat development and protection.
3	3.2	3.2.2	Threatened and endangered species' habitat.
5	5.2	5.2.1	Natural resources constraints.
5	5.2	5.2.3	Use of Computer-Aided Drafting and GIS in planning.

Long-Term Management

Activity Site Selection

According to Master Plans completed in 1997, development potential at the NASP Complex is dependent on the following developmental constraints: (1) existing adequate structures, infrastructure, and parking facilities; (2) historical and ceremonial open spaces; and (3) natural features. Existing adequate structures and infrastructures place a high level of constraint on future development due to the considerable investment involved. Inadequate structures are considered a low constraint.

The development constraints at each Installation are a composite of the man-made and natural constraints discussed above. Areas identified as having low constraints are sites in which normal engineering costs should be experienced and where development would cause no irreversible harm to the environment. Areas identified as having moderate constraints are sites in which above-normal engineering costs may be experienced. Areas of low to moderate constraints are considered to have the greatest potential for development.

NASP. Utilities, parking, and circulation are low constraints for NASP. Forrest Sherman Field and its surrounding land are considered severely constrained due to the air operations. An Air Installation Compatible Use Zone (AICUZ) does exist for the field and is used when development decisions are made. The area of NASP identified with the lowest land use constraints is the southeast corner, which contains the waterfront, historic district, and Naval Aviation Schools Command. Open spaces result in minimal constraints to development, while the forest management, wetlands, and floodplains are considered as natural constraints

to development. All historic and archaeological sites, as well as potential archaeological sites, are moderate constraints.

NOLF Bronson. The archaeological sites at BARP are a moderate constraint. Other open spaces are low constraints to development, while the forest management areas are considered to be natural constraints to development.

Corry Station. The existing parking at Corry Station, especially with the massive strip of old runway, is not a constraint for parking needs, although the runway is high relative to defining the streets, parking and pedestrian pathways. There are no documented historic sites at NTTCC Corry; therefore, this is considered a low constraint. However, a district consisting of 14 buildings is currently under nomination before the Florida State Historic Preservation Office. If accepted, the district would be considered a moderate constraint.

Saufley Field: Only a small number of parcels are available for development in the station core. Both tree-covered and open areas are considered buildable, but treeless areas are given a first priority when locating new facilities. Infill development of these parcels is the most feasible alternative for providing expansion capabilities for existing functions located at Saufley Field, and for locating new tenants. In addition, buildable areas are located outside all AICUZ areas. Forested uplands and wetlands and natural communities in the northern portion of Saufley Field are considered natural constraints for development.

Site Plan Activity Guidelines

The NASP Complex will employ the following guidelines to minimize impacts to the Complex's environmental and ecological resources. New building and training activities will be located so that habitat fragmentation does not occur. Fragmentation undermines the ecological process through the separation of wildlife populations. Buildings and training activities will be located on the edges of forested areas and will not be arbitrarily located within the middle of forested areas. The NASP Complex needs to minimize additional edge effects and maximize within forest management areas. Transportation infrastructure will be located so that habitat fragmentation does not occur. A linear feature bisecting a marginally sustainable habitat has the potential to render the resulting pieces unsustainable. Site planning activity guidelines will also include the following:

- A natural vegetation buffer will be maintained between new facilities or training areas and roadway frontage to provide wildlife habitat and aesthetic value;
- New facilities or training activities will not be located within a 50-foot vegetative buffer surrounding an existing wetland, or within the undeveloped 50-foot area adjacent to waterbodies in order to protect the water, wildlife, and vegetative habitat qualities;
- Whenever possible, previously disturbed areas or decommissioned/vacant buildings or structures will be given a first priority for use when siting new facilities.

- Wildlife habitat enhancements will be required for new activities that affect wildlife habitat. As part of the site planning and construction phase, the NASP Complex will:
 1. provide nest boxes for birds and bats, and
 2. leave brush material along woodland edges after necessary cuttings;
- Only the area necessary for the building footprint, parking, and security and safety of the site will be cleared for new development. This will help preserve the natural ground cover, reduce future grounds maintenance costs, and minimize soil erosion;
- Xeriscaping will be used for all landscaping;
- Pervious surfaces will be evaluated for use in place of impervious surfaces;
- Stormwater generated by new activity will be retained within the boundaries of the Installation, where practicable;
- Stormwater retention facilities will be developed as wetlands provided that funding and land area are available;
- Soil erosion and stormwater control measures will be implemented during site disturbance activities to avoid impacts to water quality;
- The NASP Complex will not engage in an activity in an area that might result in an adverse impact to threatened and endangered species or their habitats; and
- Implement guidelines recommended by the USFWS for reducing impacts to migratory birds (especially night-migrating species) from new communication towers (e.g., radio, television, cellular, and microwave). Although no construction of communication towers at the NASP Complex is planned, any future siting or construction of such towers would, to the extent possible, be in accordance with the *USFWS Guidance on the Siting, Construction, Operation, and Decommissioning of Communication Towers*.

The following items from the USFWS guidance are some of the most effective measures for avoiding bird strikes at towers: (1) collocating communications equipment on an existing communication tower or other structure; (2) siting new towers in existing antenna farms; (3) avoiding constructing towers more than 199 feet above ground level (AGL), using construction techniques that do not require guy wires, and using unlighted towers if Federal Aviation Administration (FAA) regulations permit; (4) if taller (> 199 feet AGL) towers with lights are required, only white (preferable) or red strobe lights should be used at night, and these should be the minimum number, intensity, and minimum number of flashes per minute allowed by the FAA; (5) siting and constructing towers so as to avoid or minimize habitat loss within and adjacent to the tower “footprint;” and (6) breeding, feeding, or roosting birds known to habitually use the proposed tower area should be relocated if possible, or seasonal restrictions on construction should be implemented to avoid disturbance during periods of high bird activity.

Environmental Considerations Relative to Management Practices

None.

Applicability of Other Management Issues and Pensacola Regional NASP Complex Programs

The following management issues, programs, and actions are directly or indirectly related to the management of land impacts, and will be consulted for additional management information or provided as additional training and education:

- Wetlands – Section 5.1.1 – buffers;
- Soil conservation and erosion control – 5.1.3 – development constraints;
- Landscaping and grounds maintenance – Section 5.1.5 – xeriscaping;
- Stormwater and water quality control – Section 5.1.4 – retention ponds with buffers for new development;
- Floodplain management – Section 5.1.6 – 100-year floodplain constraints; and
- Wildlife habitat enhancement – Section 5.3.2 – enhancement practices for areas disturbed.



Ecosystem Management

The inevitable need for development requires that site selection and site planning be implemented to minimize impacts to the Complex's ecosystem.

Military Mission

Proper site selection and site planning will ensure that development activities do not violate federal or state laws and will add significant value to quality of life.

Laws, Executive Orders, Regulations, Directives, and Memoranda Relevant to Facility Development

Sikes Act, 16 U.S.C. 670 (a)-(o), authorizes conservation programs on military reservations.

Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, 33 U.S.C. 1251, prohibits the discharge of dredged or filled materials into waters of the United States, including wetlands, without first obtaining a permit from USACE (Section 404 of the CWA).

Executive Order 11990, 24 May 1977, as amended, requires government agencies, in carrying out agency actions and programs affecting land use, provide leadership and take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

Clean Water Act: Section 401 Water Quality Certification, 1986, 33 U.S.C. 1341, requires that States certify compliance of federal permits or licenses with state water quality requirements and other applicable state laws. Under Section 401, States have authority to review any federal permit or license that may result in a discharge to wetlands or other waters under State jurisdiction to ensure that the actions would be consistent with the State's water quality requirements.

Federal Noxious Weed Act of 1974, 7 U.S.C. 2801 et. seq., provides for the control and eradication of noxious weeds and their regulation in interstate and foreign commerce.

Executive Order 13112, 3 February 1999, requires executive agencies to restrict the introduction of exotic organisms into natural ecosystems.

Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. 136, requires that all pesticides, whether for commercial or private use, be applied in accordance with product labeling and that containers are properly disposed of. EPA is responsible under FIFRA for the registration of all pesticide active ingredients used in the United States.

Federal Plant Pest Act, 7 U.S.C. 150aa et seq., regulates the importation and interstate movement of plant pests and authorizes the Secretary of Agriculture to take emergency measures to destroy infected plants or materials.

Florida Statutes, Chapter 487, the Florida Pesticide Law, regulates the distribution and use of pesticides.

Florida Statutes, Chapter 482, Structural Pest Control Act, requires using pesticides for their intended purpose in accordance with the registered labels or as directed by the EPA.

Florida Statutes, Chapter 369.2, Florida Aquatic Weed Control Act, regulates noxious aquatic weeds on public lands.

Florida Statutes, Chapter 369.252, Invasive Exotic Plant Control, requires a program to be established to eradicate or maintain control of the species detrimental to the State's natural environment.

Executive Order 11988, Floodplain Management, May 24, 1977, requires federal service agencies to avoid construction or management practices that will adversely affect floodplains, unless it is found that: (1) there is no practical alternative; and (2) the proposed action has been designed to minimize harm to or within the floodplain.

The President's April 16, 1994, Memorandum on Environmentally Beneficial Landscaping, requires implementing landscaping practices that are intended to benefit the environment and generate long-term cost savings.

Executive Order 13112, 3 February 1999, requires executive agencies to restrict the introduction of exotic organisms into natural ecosystems.

Endangered Species Act, 16 U.S.C. 35, 32 CFR 190, provides for the identification and protection of threatened and endangered species of fish, wildlife, and plants and their critical habitats. Requires federal agencies ensure that no agency action is likely to jeopardize the continued existence of a threatened or endangered species.

Florida Statutes, Chapter 370.12, Florida Endangered and Threatened Species Act, intends to conserve, protect, and manage the threatened and endangered species and their habitat.

Additional Sources of Information

None.

6

Natural Resources Land Classification

This section presents the functional areas of the NASP Complex and the management focus objectives for each functional area.

Functional Areas

Functional areas reflect the use of the area for its military purpose and the potential for natural resources management. In classifying a functional area, it is recognized that uses occurring on the land are largely fixed and that the management potential for natural resources must consider the availability and suitability of natural resources within the parameters of the military use of the property. Property at an Installation can be classified into one or more of the following classes:

Protected Areas - This classification will include land protected due to the unique natural, cultural or aesthetic value. Examples include rare geologic features, significant historical sites, natural heritage sites, threatened and endangered species' critical habitat, unique high-value recreation areas, and exemplary natural communities;

Operational Protected Areas - This classification will include areas vital to the continuance of the military mission, and intensively utilized for this purpose. Examples AICUZ areas, intensively developed/built areas, dredge spoil sites, high security restricted areas, industrial support areas, and BASH areas;

Mixed-Use Management Areas - Lands where low or moderate intensity military uses occur within areas that are largely in a natural condition, contain valued natural features, and/or have the potential to yield significant natural resources-based benefits through effective management practices. Consistent with the military mission, non-timber values such as wildlife habitat, water quality (wetland, stormwater and floodplains protection), recreational potential, or urban forestry management is the basis for management decisions. Examples include streamside management zones, cypress domes and ponds, fresh water fisheries, shoreline, habitat for established conservation priorities, grounds maintenance, and urban forestry;

Forest Management Areas - This classification includes land where forest management is the primary objective and includes areas that may be designated for commercial harvesting. However, within each area the management intensity will be considered against factors such as regulations, economic and wildlife considerations, slope stability concerns, soils, inaccessibility, aesthetics, or lower site productivity. Examples include bottomland

hardwood stands, upland hardwood/softwood areas with natural regeneration, wildlife corridors, and stands with extended rotation ages.

Management Focus Objectives

Management focus objectives for a functional area define what will be the long-term focus for natural resources management. Management focus objectives are determined by consideration of how the focus interacts with other functional areas to achieve ecosystem management goals and objectives of the INRMP. Functional areas at an Installation can be classified into one or more of the following management focus objectives: land management; forestry; fish and wildlife; and outdoor recreation.

- Land management focuses on management issues for wetlands, invasive and exotic species and noxious weeds, soil conservation and erosion control, stormwater, grounds maintenance and landscaping, urban forestry, integrated pest management practices, and floodplains protection.
- Forest management focuses on management issues for the improvement of timber stands for timber production and/or wildlife habitat.
- Fish and wildlife management focuses on management actions designed to preserve, enhance, and regulate for indigenous wildlife and its associated habitat. These actions include those directed at Installation conservation priorities such as: protected species and non-game species; management and harvest of game species; threatened or endangered species; and habitat improvements.
- Outdoor recreation management focuses on the provision of natural resources-based outdoor recreational opportunities, where the emphasis is the understanding and appreciation of the natural environment.

6.1 Functional Area and Management

The NASP Complex is composed of eight properties. Based on geography, land use, and natural resources, the NASP Complex is divided into 12 functional areas: Protected Area 1 (P-1), Protected Area 2 (P-2), Operational Protected Area 1 (OP-1), Operational Protected Area 2 (OP-2), Mixed-Use Management Area 1 (MU-1), and Mixed-Use Management Area 2 (MU-2) at NASP; Mixed-Use Management Area 3 (MU-3), Operational Protected Area 3 (OP-3), and Protected Area 3 (P-3) at NOLF Bronson; Operational Protected Area 4 (OP- 4) at Corry Station; and Operational Protected Area 5 (OP-5) and Protected Area 4 (P-4) at Saufley Field.

6.2 NASP

6.2.1 Protected Area 1 (P-1)

As shown in Figure 6-1, P-1 is located in the southwest portion of NASP along the shoreline of Big Lagoon. The area within P-1 is designated as Protected due to the presence of unique natural communities exhibiting high aesthetic and recreational value. P-1 is bounded on the north primarily by Radford Road and on the south by Big Lagoon. This area is characterized by beach dune, scrubby flatwoods, scrub, estuarine tidal marsh communities, and submerged and aquatic vegetation along Big Lagoon, and is mostly within the 100-year floodplain. The Trout Point Nature Trail, which provides excellent wildlife viewing and environmental education on various habitats, is located in P-1. Trout Point offers easy beach access and is designated for public use for hiking and nature study.

Sherman Cove Marina, which is located in the central portion of P-1, is the main powerboat facility at the NASP Complex. This facility offers both wet slips and dry storage space for personal craft storage. In addition, boating and fishing gear and other supplies may be purchased at the marina. Extensive seagrass beds exist in P-1, particularly at Sherman Cove. Lake Frederic, located in the eastern portion of P-1, provides recreational fishing opportunities, as well as quality wetland habitat along its edges.

Management Focus

Due to the presence of unique natural communities, relatively undisturbed shorelines, and Lake Frederic and Sherman Cove, the management focus objectives for P-1 are outdoor recreation and fish and wildlife. Specifically, the following management practices will occur in P-1:

- 50-foot wetlands buffers will be maintained along the edges of all wetlands, lakes, and shorelines, where practicable;
- Lake Frederic will be stocked with freshwater fish such as bass, bluegill, sunfish, and/or catfish;
- Water quality in Lake Frederic will be monitored;
- Shoreline erosion will be minimized by the establishment of shoreline vegetation and beach renourishment projects;
- Projects will be implemented to protect and enhance natural communities and habitat for rare species (for example, shorebird nesting areas, etc.);
- The Trout Point Nature Trail will be connected to other area nature and jogging trails;

Insert Figure 6-1

- International Coastal Cleanup and periodic beach cleanups will be conducted;
- Protection and management of seagrass beds will be encouraged through cooperation with USFWS during surveys, improved channel marking, warning signs, buoys in shallow areas, and information signs at access points; and
- Prescribed burning will be conducted in selected forest stands to decrease fuel loads and improve habitat quality.

Other Management Practices

Forest stands in P-1 will be managed in accordance with the Forestry Management Plan for the Complex (see Appendix B). Land management practices (e.g., wetlands management, invasive and exotic species control, soil conservation and erosion control, stormwater and water quality control, landscaping and grounds maintenance, pest control, and urban forestry) will be implemented, as needed, in P-1.

Goals and Objectives

Table 6-1 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for P-1.

Table 6-1			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR P-1			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.2	Stormwater management.
1	1.1	1.1.2	Erosion control management.
1	1.1	1.1.4	Wetlands assessment and protection.
1	1.5	1.5.1	Shoreline protection.
3	3.1	3.1.1	Habitat development and protection program.
3	3.1	3.1.2	Biological monitoring.
3	3.2	3.2.1, 3.2.2	Protection for rare, threatened and endangered species.
3	3.3	3.3.1	Nuisance wildlife control.
4	4.1	4.1.1	Baseline information for natural resources-based outdoor recreation.
4	4.1	4.1.2, 4.1.3	Recreational trails and/or interpretive centers.

6.2.2 Protected Area 2 (P-2)

As shown in Figure 6-1, P-2 is located along the south central edge of NASP, along the Pensacola Bay shoreline, directly east of P-1. The area within P-2 is designated as Protected due to the presence of unique cultural resources, high-value recreation areas, and beach-dune natural communities. Historical sites include Fort Barrancas and the Advanced Redoubt, managed by the NPS as part of GINS, and the Pensacola Lighthouse managed by the USCG. P-2 is used primarily for outdoor recreation, but contains scattered buildings and facilities such as the Lighthouse Point Restaurant, Navy Lodge, cabins, cabanas, and softball fields. The Oak Grove Campground, which offers both RV and tent camping, is located in the western portion of P-2, adjacent to Pensacola Bay.

Management Focus

Because of the high recreational potential and existing facilities, the presence of beach dune natural communities, shoreline habitats, and historically significant sites, the management focus objectives of P-2 are outdoor recreation and fish and wildlife. Management activities occurring within P-2 include the following:

- Projects will be implemented to protect and enhance natural communities and habitat for rare species (for example, shorebird nesting areas, etc.);
- The Trout Point Nature Trail will be connected to the Lighthouse Nature Trail, and an NPS Cooperative Trail will connect area recreational and historical facilities;
- International Coastal Cleanup and periodic beach cleanups will be conducted; and
- Beach renourishment and shoreline vegetation enhancement may also occur where needed.

Other Management Practices

Land management practices (e.g., wetlands management, invasive and exotic species control, soil conservation and erosion control, stormwater and water quality control, landscaping and grounds maintenance, pest control, and urban forestry) will be implemented, as needed, in P-2.

Goals and Objectives

Table 6-2 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for P-2.

Table 6-2			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR P-2			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.2	Stormwater management.
1	1.1	1.1.2	Erosion control management.
1	1.1	1.1.4	Wetlands assessment and protection.
1	1.5	1.5.1	Shoreline protection.
3	3.1	3.1.1	Habitat development and protection program.
3	3.1	3.1.2	Biological monitoring.
3	3.2	3.2.1, 3.2.2	Protection for rare, threatened and endangered species.
3	3.3	3.3.1	Nuisance wildlife control.
4	4.1	4.1.1	Baseline information for natural resources-based outdoor recreation.
4	4.1	4.1.2, 4.1.3	Recreational trails and/or interpretive centers.

6.2.3 Operational Protected Area 1 (OP-1)

As shown in Figure 6-1, OP-1 is located on the western portion of NASP. The area within OP-1 is designated as Operational Protected due to the presence of facilities and operations deemed vital to the military mission. It consists primarily of Forrest Sherman Field and surrounding lands that are composed primarily of managed pine stands. Due to air operations, the airfield and surrounding lands are considered severely constrained in terms of development potential. An AICUZ does exist for the field.

Management Focus

The management focus objectives of OP-1 are land management and forestry due to the military mission requirements of the land. Land management activities in this area will include those related to wetlands management, invasive and exotic species control, soil conservation and erosion control, stormwater and water quality control, landscaping and grounds maintenance, pest control, and urban forestry. Forest stands in OP-1 will be managed in accordance with the Forest Management Plan (see Appendix B). Silvicultural activities such as timber harvesting, fertilizer application, and prescribed burning will occur in OP-1, as long as these activities do not interfere with the military mission. Specific management practices and activities in this area will include:

- Implementation of the BASH Plan by identifying projects for Facilities Management Department implementation (e.g., aquatic weed control, ditch maintenance, and proper grounds maintenance);
- Nuisance wildlife management activities, including those for animals, such as deer, that encroach runways and endanger the mission;
- BASH-related land management activities;
- Control of invasive and exotic species;
- Maintaining or creating 50-foot buffers adjacent to the wetlands. Buffer areas will provide the basic physical and chemical buffering needed to reduce siltation into the wetland, thus retaining the natural attenuation and filtering capacity; and
- Forestry activities, which may include: harvesting and sale of timber and pine straw; TSI activities (herbicide and fertilizer application); the construction and/or maintenance of forest roads for management activities access; and prescribed burning and wildland fire control.

Other Management Practices

Silvicultural activities are planned to enhance wildlife habitat in addition to improving forest health. Projects will also be implemented to protect and enhance natural communities and habitats for rare species, such as improving pitcher plant habitat in the clear zones near Forrest Sherman Field. In addition, forested wetlands in OP-1 will be managed for fish and wildlife.

Goals and Objectives

Table 6-3 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for OP-1.

Table 6-3			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR OP-1			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.1	Stormwater management.
1	1.1	1.1.2	Soil erosion control management.
1	1.1	1.1.3	Pest Management Program.
1	1.1	1.1.4	Wetlands assessment and protection.
1	1.1	1.1.5	Forest management and watershed protection.
1	1.2	1.2.1	Invasive and exotic species control.
1	1.3	1.3.1	Floodplain protection.

Table 6-3			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR OP-1			
1	1.5	1.5.1	Shoreline protection.
1	1.6	1.6.1-1.6.3	Landscape management practices and urban forestry.
2	2.1-2.3	2.1.1-2.1.3, 2.2.1, 2.3.1	Forest management.
3	3.1	3.1.1	Habitat development and protection program.
3	3.2	3.3.2	BASH Plan.

6.2.4 Operational Protected Area 2 (OP-2)

As shown in Figure 6-1, OP-2 is located on the eastern portion of the NASP peninsula. The area within OP-2 is designated as Operational Protected due the presence of operations and facilities deemed vital to the military mission. OP-2 consists primarily of operational and urban areas, and includes administration buildings, community facilities, public works and utility offices (including the wastewater treatment plant), medical facilities, operations facilities, maintenance and supply facilities, training facilities, family housing, troop housing, and restaurants. In addition, OP-2 contains significant historical sites such as Barrancas National Cemetery and Fort San Carlos de Austria. The area is bordered on the east and south by Pensacola Bay, with Bayou Grande to the north.

Management Focus

The focus of OP-2 is land management due to the limited extent of natural resources, high military mission requirements for the land, and high concentration of human activities. Natural resources management issues will be dominated by activities related to soil erosion, grounds maintenance, urban forestry, shoreline management, and stormwater management practices for the protection of wetlands and water quality for fish and wildlife.

Management focus actions will include:

- Using environmentally beneficial landscaping practices (xeriscaping) to reduce the need for irrigation, fertilizers, and pesticides. Xeriscaping will include the use of native species, and will be required for all new buildings;
- Controlling invasive and exotic species;

- Maintaining or creating 50-foot buffers adjacent to the wetlands and shorelines. Buffer areas will provide the basic physical and chemical buffering needed to reduce siltation into the wetlands, thus retaining the natural attenuation and filtering capacity;
- Minimizing the loss of floodplain habitat and attenuation capacity;
- Managing nuisance wildlife;
- Using urban forestry practices (e.g., planting trees in urban areas) to stabilize soils, provide aesthetic value, and enhance habitats for wildlife; and
- Minimizing shoreline erosion through the establishment of shoreline vegetation and beach renourishment projects.

Other Management Practices

Although OP-2 contains few forested areas, the Magazine Point area contains slash pine forest stands that will be managed for forestry and wildlife habitat. Magazine Point is on a peninsula located on the northeast portion of OP-2, between Bayou Grande and Pensacola Bay. In addition, outdoor recreational opportunities in OP-2 include the Sunec-Ke Nature Trail, which is located adjacent to Bayou Grande between the golf course and Magazine Point, and the Sailing Facility.

Goals and Objectives

Table 6-4 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for OP-2.

Table 6-4			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR OP-2			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.1	Stormwater management.
1	1.1	1.1.2	Soil erosion control management.
1	1.1	1.1.3	Pest Management Program.
1	1.1	1.1.4	Wetlands assessment and protection.
1	1.1	1.1.5	Forest management and watershed protection.
1	1.2	1.2.1	Invasive and exotic species control.
1	1.3	1.3.1	Floodplain protection.
1	1.5	1.5.1	Shoreline protection.
1	1.6	1.6.1-1.6.3	Landscape management practices and urban forestry.
3	3.3	3.3.1	Nuisance wildlife.

6.2.5 Mixed-Use Management Area 1 (MU-1)

As shown in Figure 6-1, MU-1 is located along the north central portion of NASP adjacent to Bayou Grande. The area within MU-1 is designated as Mixed-Use Management due to its potential to yield significant natural resources-based outdoor recreational benefits, and wildlife potential from the pine and mixed forests present. The eastern portion of MU-1 is the location of a former sanitary landfill, this area was designated as a site requiring further environmental investigation following a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) assessment in 1988. The site has been managed under the IRP (Site 1) and is currently undergoing remedial action.

The northern portion of MU-1, adjacent to Bayou Grande, is the site of the Bayou Grande Nature Trail (approximately 1 mile). The trail begins at the NAS Family Picnic Center, includes 31 interpretive stops, a gazebo, a 115-foot cable bridge, and an observation deck over a sawgrass inlet. Primitive camping sites are also maintained along the northern portion of MU-1.

Management Focus

The management focus objectives of MU-1 are forestry and outdoor recreation. Management focus actions will include:

- Forestry activities, which may include: harvesting and selling timber and pine straw; the construction and/or maintenance of forest roads to provide access for management activities; and prescribed burning and wildland fire control;
- The implementation of projects to protect and enhance natural communities and habitats for rare species; and
- Maintenance of the Bayou Grande Nature Trail and primitive camping areas.

Other Management Objectives

Land management practices (e.g., wetlands management, invasive and exotic species control, soil conservation and erosion control, stormwater and water quality control, landscaping and grounds maintenance, pest control, and urban forestry) will be implemented, as needed, in MU-1. In addition, projects will be implemented to protect and enhance natural communities and habitats for rare species (e.g. installing nest boxes).

Goals and Objectives

Table 6-5 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for MU-1.

Table 6-5			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR MU-1			
Goals	Objectives	Strategies	Comments
2	2.1-2.3	2.1.1-2.1.3, 2.2.1, 2.3.1	Forest management.
4	4.1	4.1.1	Baseline information for natural resources-based outdoor recreation.
4	4.1	4.1.2, 4.1.3	Recreational trails and/or interpretive centers.

6.2.6 Mixed-Use Management Area 2 (MU-2)

As shown in Figure 6-1, MU-2 is located adjacent to and east of MU-1. The area within MU-2 is designated as Mixed-Use Management due to its potential to yield significant natural resources-based outdoor recreational benefits. The A. C. Read Golf Course comprises most of MU-2. Presently, grounds within the golf course are intensively managed, even in out-of-play areas. Also, the southeast section of this area contains several buildings that were historically used as metal-work facilities, but are presently used for storage and maintenance activities. A depressional area, located near these structures, was designated as a wetland and has been included as a site under the IRP.

Management Focus

The management focus objective of MU-2 is land management (see Section 5.1).

Management focus actions will include:

- Using environmentally beneficial landscaping practices (xeriscaping) to reduce the need for irrigation, fertilizers, and pesticides. Xeriscaping will include the use of native species, and will be required for all new buildings;
- Controlling invasive and exotic species;
- Maintaining or creating 50-foot buffers adjacent to wetlands, ponds, and shorelines. Buffer areas will provide the basic physical and chemical buffering needed to reduce siltation into the wetland, thus retaining the natural attenuation and filtering capacity;

- Managing nuisance wildlife;
- Using urban forestry practices (e.g., planting trees in urban areas) to stabilize soils, provide aesthetic value, and habitats for wildlife; and
- Minimizing shoreline erosion through the establishment of shoreline vegetation and beach renourishment projects, as needed.

Other Management Objectives

In addition to implementing ecologically sound grounds maintenance practices at the golf course, the NASP Complex also will manage the area for wildlife resources. Wildlife habitat in MU-2 will be enhanced by implementing programs described in the A. C. Read Golf Course Habitat Conservation Plan (see Project No. 6), such as:

- Re-establishing natural vegetation in out-of-play areas by eliminating mowing and planting native species;
- Installing nest boxes for cavity nesters indigenous to the region;
- Planting wildflower and butterfly gardens;
- Allowing snags and brush piles to remain in place to provide habitat for cavity-dwelling birds;
- Allowing riparian vegetation to grow up along golf course lakes and Bayou Grande; and
- Providing bird feeders and watering stations.

Goals and Objectives

Table 6-6 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for MU-2.

Table 6-6			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR MU-2			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.1	Stormwater management.
1	1.1	1.1.2	Soil erosion control management.
1	1.1	1.1.3	Pest Management Program.
1	1.1	1.1.4	Wetlands assessment and protection.

<p align="center">Table 6-6</p> <p align="center">NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR MU-2</p>			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.5	Forest management and watershed protection.
1	1.2	1.2.1	Invasive and exotic species control.
1	1.3	1.3.1	Floodplain protection.
1	1.5	1.5.1	Shoreline protection.
1	1.6	1.6.1-1.6.3	Landscape management practices and urban forestry.
3	3.1	3.1.3	Golf Course Habitat Conservation Plan.

6.3 NOLF Bronson

6.3.1 Mixed-Use Management Area 3 (MU-3)

The boundaries of MU-3 are consistent with the boundaries of BARP. The area within MU-3 is designated as Mixed-Use Management due to its potential to yield significant natural resources-based benefits through effective management practices. As shown in Figure 6-2, this area is located on the western portion of NOLF Bronson, adjacent to Perdido Bay. BARP contains recreational boating facilities, RV and primitive camping facilities, and a mountain bike trail. A few rare animals and plants have been documented at the park: osprey, gopher tortoise, primrose-flowered butterwort, white-top pitcher-plant, and parrot pitcher-plant. Most of the site consists of live oak and slash and longleaf pine communities (see Figure 3-6).

Management Focus

Due to the outstanding recreational opportunities associated with the existing campgrounds, trails, and access to Perdido Bay, the management objective of MU-3 is outdoor recreation.

Management focus actions will include:

- Beach renourishment at BARP;
- Establishment of native vegetation on renourished beaches;
- International Coastal Cleanup, as well as periodic cleanups;
- Formalizing the trail system at BARP; and

- Insert Figure 6-2

- Developing an orienteering course for outdoor recreation and military training.

Other Management Objectives

In addition to outdoor recreation, portions of MU-3 will be managed for fish and wildlife and forestry, with additional management actions to include:

- Neotropical Migratory Bird Survey;
- Biological monitoring of rare, threatened, and endangered species, as well as other special monitoring projects (e.g., for the gopher tortoise);
- Projects to protect and enhance natural communities and rare species, such as constructing and managing nest boxes for avian species, and erecting signs to alert grounds maintenance personnel of gopher tortoise burrows in mowed areas; and
- Forestry activities, which may include: harvesting and selling timber and pine straw; the construction and/or maintenance of forest roads to provide access for management activities; and prescribed burning and wildland fire control.

Goals and Objectives

Table 6-7 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for MU-3.

Table 6-7 NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR MU-3			
Goals	Objectives	Strategies	Comments
4	4.1	4.1.1	Baseline information for natural resources-based outdoor recreation.
4	4.1	4.1.2, 4.1.3	Recreational trails, primitive camping, orienteering, and nature studies.

6.3.2 Operational Protected Area 3 (OP-3)

OP-3 includes the former operational facilities and airfield at NOLF Bronson (see Figure 6-2). The area within OP-3 is designated as Operational Protected due to the presence of buildings and runways, and the high potential for future operational uses. Although much of this management area

is covered by asphalt (approximately 200 acres of abandoned airstrips and taxiways), presently it is not used for flight operations. It does support several military reserve and civic groups through licenses and use agreements, and may be used for military training operations in the future. Slash and longleaf pine stands are present along the northern portions of OP-3, north of the airfield (see Figure 3-6); gopher tortoises have been documented in this area (FNAI 1997a).

Management Focus

The management focus objectives of OP-3 are land management and forestry due to existing airfield and commercial forest stands. Management focus actions will include:

- Forestry activities, which may include: harvesting and selling timber and pine straw; the construction and/or maintenance of forest roads to provide access for management activities; and prescribed burning and wildfire control; and
- Land management practices (e.g., wetlands management, invasive and exotic species control, soil conservation and erosion control, stormwater and water quality control, landscaping and grounds maintenance, pest control, and urban forestry) will be implemented, as needed, in OP-3.

Other Management Objectives

In addition to commercial purposes, forest stands of OP-3 will be managed for wildlife species such as gopher tortoises. Management actions at MU-3 that will enhance wildlife habitat will include activities such as thinning, prescribed burning, and wildland fire control.

Goals and Objectives

Table 6-8 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for OP-3.

Table 6-8 NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR OP-3			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.1	Stormwater management.
1	1.1	1.1.2	Soil erosion control management.
1	1.1	1.1.4	Wetlands assessment and protection.
1	1.1	1.1.5	Forest management and watershed protection.

<p style="text-align: center;">Table 6-8</p> <p style="text-align: center;">NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR OP-3</p>			
Goals	Objectives	Strategies	Comments
1	1.2	1.2.1	Invasive and exotic species control.
1	1.3	1.3.1	Floodplain protection.
1	1.6	1.6.1-1.6.3	Landscape management practices and urban forestry.
2	2.1-2.3	2.1.1-2.1.3, 2.2.1, 2.3.1	Forest management.

6.3.3 Protected Area 3 (P-3)

As shown in Figure 6-2, P-3 is located in the southeastern portion of NOLF Bronson, along its eastern perimeter. The area is directly north of the Perdido Pitcher Plant Prairie (see Section 3.9). The area within P-3 is designated as Protected due to the unique natural resources present. This management area consists of various forest cover types (e.g., longleaf pine, slash pine, and titi swamp; see Figure 3-6), a relatively large beaver pond (approximately 55 acres), and wet prairie natural communities. Several protected species have been documented in this area including gopher tortoise, snowy egret, little blue heron, white ibis, and numerous wetland plants. In addition, a great blue heron rookery has been documented near the beaver pond (FNAI 1997a).

Management Focus

The focus of P-3 is fish and wildlife throughout, with a forestry focus in the upland pine stands. Management focus actions will include:

- Wetlands delineation, and assessment of wetlands quality (i.e., health, condition);
- Biological monitoring of rare, threatened, and endangered species, as well as other special monitoring projects (e.g., for the gopher tortoise);
- Invasive and exotic species control;
- Projects to protect and enhance natural communities and rare species, such as constructing and managing nest boxes for avian species, and erecting signs to alert grounds maintenance personnel of gopher tortoise burrows in mowed areas; and
- Forestry activities, which may include: harvesting and selling timber and pine straw; the construction and/or maintenance of forest roads to provide access for management activities; and prescribed burning and wildland fire control.

Other Management Objectives

In addition to fish and wildlife and forestry, portions of P-3 will be managed for outdoor recreation. Additional management actions at P-3 will include:

- Improving and maintaining fishing opportunities associated with the beaver pond;
- Creating interpretive nature trails near the beaver pond; and
- Considering the transfer of southern part of P-3 to the State of Florida for addition to the Perdido Pitcher Plant Prairie (see Section 3.9.1).

Goals and Objectives

Table 6-9 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for P-3.

Table 6-9			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR P-3			
Goals	Objectives	Strategies	Comments
2	2.1-2.3	2.1.1-2.1.3, 2.2.1, 2.3.1	Forest management.
3	3.1	3.1.1	Habitat development and protection program.
3	3.1	3.1.2	Biological monitoring.
3	3.2	3.2.1, 3.2.2	Rare, threatened and endangered species surveys and habitat enhancement.
4	4.1	4.1.2	Nature trails .

6.4 Corry Station

6.4.1 Operational Protected Area 4 (OP- 4)

OP-4 encompasses NTTC Corry, the Navy Exchange Mall Corry, Navy Housing Corry, and the U.S. Navy Hospital Corry (see Figure 6-3). The U.S. Navy Hospital occupies the southwestern corner of OP-4; NTTC Corry the northern portion; Navy Housing the southeastern portion, and the Navy Exchange Mall the south central portion of OP-4, adjacent to Navy Housing. These facilities are collectively referred to as Corry Station in this document. The area encompassing OP-4 is designated

Insert Figure 6-3

as Operational Protected due to the presence of buildings and other facilities vital to the military mission.

Management Focus

Due to the urbanized, developed land use within OP-4, land management will be the focus of this area. Natural resources management issues will be dominated by activities related to soil erosion, grounds maintenance, urban forestry, and stormwater management practices for the protection of wetlands and water quality.

Management focus actions will include:

- Using environmentally beneficial landscaping practices (xeriscaping) to reduce the need for irrigation, fertilizers, and pesticides. Xeriscaping will include the use of native species, and will be required for all new buildings and landscaping renewal projects;
- Controlling invasive and exotic species;
- Implementing programs to decrease erosion and stormwater;
- Maintaining or creating 50-foot buffers adjacent to the wetlands. Buffer areas will provide the basic physical and chemical buffering needed to reduce siltation into the wetland, thus retaining the natural attenuation and filtering capacity;
- Managing nuisance wildlife;
- Using urban forestry practices (e.g., planting trees in urban areas) to stabilize soils, provide aesthetic value, and enhance habitats for wildlife;
- Biological monitoring of rare, threatened, and endangered species. Although no rare, threatened, or endangered species were found during the 1997 survey, habitats at Corry Station will be included in subsequent surveys of the Complex; and
- Creation of projects to develop trails connecting the U.S. Navy Hospital and Navy Housing to the Jones Swamp Preserve.

Other Management Objectives

In addition to land management, forest stands at Corry Station will be managed primarily for forestry, but stands closest to housing units may be managed for wildlife. There are 25 relatively small forest stands (totaling approximately 106 acres) scattered throughout Corry Station. These stands are predominantly slash pine ranging in age from 28 to 40 years. Silviculture practices scheduled for the 10-year INRMP period include thinning, fertilization, and herbicide applications. No prescribed burning will occur in forest stands within OP-3 due to surrounding land uses. Wildlife habitat will be enhanced through the use of xeriscaping and urban forest management practices.

Goals and Objectives

Table 6-10 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for OP-4.

Table 6-10			
NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR OP-4			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.1	Stormwater management.
1	1.1	1.1.2	Soil erosion control management.
1	1.1	1.1.3	Pest Management Program.
1	1.1	1.1.4	Wetlands assessment and protection.
1	1.1	1.1.5	Forest management and watershed protection.
1	1.2	1.2.1	Invasive and exotic species control.
1	1.3	1.3.1	Floodplain protection.
1	1.5	1.5.1	Shoreline protection.
1	1.6	1.6.1-1.6.3	Landscape management practices and urban forestry.

6.5 NETPDTC Saufley

6.5.1 Operational Protected Area 5 (OP-5)

As shown in Figure 6-4, OP-5 is located on the south and central portions of Saufley Field and consists primarily of the airfield and support facilities of the NETPDTC. The area within OP-5 is designated as Operational Protected because it is vital to the military mission. Forest stands occur along western edge of OP-5.

Management Focus

The management focus of OP-5 is land management due to the military mission requirements of the land. Natural resources management issues will be dominated by activities related to soil

Insert Figure 6-4

erosion control, grounds maintenance, urban forestry, and stormwater management practices for the protection of wetlands and water quality.

Management focus actions will include:

- Implementation of the BASH Plan by identifying projects for Facilities Management Department implementation (e.g., aquatic weed control, ditch maintenance, proper grounds maintenance, and landscaping renewal projects);
- Using environmentally beneficial landscaping practices (xeriscaping) to reduce the need for irrigation, fertilizers, and pesticides. Xeriscaping will include the use of native species, and will be required for all new buildings and landscaping renewal projects;
- Controlling invasive and exotic species;
- Implementing soil erosion and stormwater control programs;
- Maintaining or creating 50-foot buffers adjacent to the wetlands. Buffer areas will provide the basic physical and chemical buffering needed to reduce siltation into the wetland and retain the natural attenuation and filtering capacity;
- Minimizing the loss of floodplain habitat and attenuation capacity;
- Managing nuisance wildlife; and
- Using urban forestry practices (e.g., planting trees in urban areas) to stabilize soils, provide aesthetic value, and enhance habitats for wildlife.

Other Management Practices

Although OP-5 contains few natural areas, forest stands located along the western edge of OP-5 will be managed for forestry and wildlife. Silvicultural activities, such as thinning and prescribed burning, will occur in OP-5 as long as activities do not interfere with the military mission. Projects may also be conducted to enhance habitat for rare species; one such project would maintain the availability of habitat for bats (see Table 3-4) and educate the appropriate Installation personnel about the occurrence of bats at Saufley Field, including stormwater drainage systems.

Goals and Objectives

Table 6-11 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for OP-5.

Table 6-11 NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR OP-5			
Goals	Objectives	Strategies	Comments
1	1.1	1.1.1	Stormwater management.
1	1.1	1.1.2	Soil erosion control management.
1	1.1	1.1.3	Pest Management Program.
1	1.1	1.1.4	Wetlands assessment and protection.
1	1.1	1.1.5	Forest management and watershed protection.
1	1.2	1.2.1	Invasive and exotic species control.
1	1.3	1.3.1	Floodplain protection.
1	1.6	1.6.1-1.6.3	Landscape management practices and urban forestry.

6.5.2 Protected Area 4 (P-4)

As shown in Figure 6-4, P-4 is located along Eightmile and Elevenmile creeks, north of OP-5. The area within P-4 is designated as Protected due to the unique natural resources present. This area consists of longleaf and mixed pine forests, in addition to floodplain forests (natural communities) along the creeks. The Sauflay Field Nature Trail, which consists of two loops (totaling approximately 1.5 miles), winds through pine scrub forest and swampy lowlands.

Management Focus

The focus objectives of P-4 are fish and wildlife and forestry. The floodplain forests present in this area provide quality wetland habitat, and longleaf and mixed pine forest stands will be burned and thinned periodically to maintain forest health and wildlife habitat (see Section 5.2.1).

Management focus actions will include:

- Wetlands delineation and assessment of wetlands quality (i.e., health, condition);
- Neotropical Migratory Bird Survey;
- Biological monitoring of rare, threatened, and endangered species, as well as other special monitoring projects;
- Controlling invasive and exotic species;
- Maintaining or creating 50-foot buffers adjacent to the wetlands. Buffer areas will provide the basic physical and chemical buffering needed to reduce siltation into the wetland and retain the natural attenuation and filtering capacity;

- Minimizing the loss of floodplain habitat and attenuation capacity;
- Projects to protect and enhance natural communities and rare species, such as conducting prescribed burns to enhance habitat for pitcher plants;
- Forestry activities, which may include: harvesting and selling timber and pine straw; TSI activities (herbicide and fertilizer application); the construction and/or maintenance of forest roads to provide access for management activities; and prescribed burning and wildland fire control; and
- Control unauthorized use of area and enforce off-road vehicle use restrictions.

Other Management Practices

Eightmile Creek and adjacent forests will be managed for outdoor recreation by maintaining nature trails and primitive camping sites and providing for recreational fishing.

Goals and Objectives

Table 6-12 presents the natural resources management goals, objectives, and strategies (see Section 4) to be achieved from the management focuses identified for P-4.

Table 6-12 NATURAL RESOURCES MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES FOR P-4			
Goals	Objectives	Strategies	Comments
2	2.1-2.3	2.1.1-2.1.3, 2.2.1, 2.3.1	Forest management.
3	3.1	3.1.1	Habitat development and protection program.
3	3.1	3.1.2	Biological monitoring.
3	3.2	3.2.1, 3.2.2	Rare, threatened and endangered species surveys and habitat enhancement.
4	4.1	4.1.2	Nature trails .

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A

NASP Complex Projects

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Appendix A describes the projects to be implemented by the NASP Complex. Projects were identified by the NASP Complex NRM in consultation with foresters, fish and wildlife biologists, and soil conservationists with the Land Management Department of Southern Division, as well as with federal, state, and county wildlife biologists, foresters, and land managers. For each project, Appendix A discusses the purpose, location, description, cost, relevance to the goals and objectives listed in Section 4, baselines, monitoring and legal requirements. It is the intent of the NASP Complex to implement the projects as described in Appendix A to the greatest extent possible. The implementation of projects is largely dependent upon availability of funds. Recognizing the uncertainties in funding and the possibility of changes to the NASP Complex military mission and its civilian and military staffing, the implementation of projects will proceed as directly and completely as possible. Table A-1 summarizes the projects and Table A-2 shows project costs by fiscal year.

Funding for implementation of the INRMP will come from the Installation, Chief of Naval Education and Training (Major Claimant as appropriate), or Naval Facilities Engineering Command natural resources fund sources. The natural resources programs and projects described in this INRMP are divided into mandatory and stewardship categories to reflect implementation priorities. Every effort will be made to acquire O & M(N) Environmental, or other funding to implement DoD mandatory projects, in the most timely manner possible. Stewardship-type projects will be funded through forestry, agricultural outlease, fish and wildlife, Legacy, or other fund sources as funding and personnel resources become available.

Table A-1

NAS PENSACOLA NATURAL RESOURCES PROJECTS

Project #	Project Description	INRMP Page Ref.	Scheduled Implementation (FY)	Prime Legal Driver	Navy Assessment Level (*2)	Funding Priority (*1)	Budget Criteria (*3)	Cost Estimate \$	Fund Source	NEPA Requirement	Date Project Completed
1	Wetlands Management	A-8	2004, 2008	5, 9	1	M	12029	\$65,000	ENV, STA	No	
2-a	Invasive and Exotic Species Control Plan	A-10	2004	12	1	M	12015	\$20,000	ENV, STA	No	
-b	Invasive and Exotic Species Control	A-10	2004 - 2010	12	1	M	12035	\$47,000	ENV, STA	No	
3-a	Beach Re-nourishment Permit	A-12	2001, 2005, 2010	4	1	M	12015	\$ 3,000	STA	Yes	
-b	Beach Re-nourishment	A-12	2004-2010	4	1	M	12035	\$74,000	ENV, STA	Yes	
4	Establish Shoreline Vegetation	A-13	2003-2010	10	1	M	12035	\$140,000	ENV, AO, NRR	No	
5	International Coastal Cleanup	A-14	2001-2010		5	S	12035	\$10,000	STA, AO	No	
6	Golf Course Habitat Conservation Plan	A-15	2003-2005		5	S	12036	\$8,000	MWR, NRR, AO	No	
7	Urban Forestry (Tree City USA Re-certification)	A-17	2001-2010		5	S	12035	\$360,000	STA, NRR, FR	No	
8	Forest Administration	A-18	2001-2010	10	N/A	M	12037	Included in Project #22	FOR	No	
9	Forest Product Sales	A-19	2001, 2004, 2006, 2007, 2010	10	N/A	M	12037	\$13,500	FOR, FR	No	
10	Timber Stand Improvement (Herbicide Application and Fertilization)	A-20	2001, 2002, 2007, 2008	10	N/A	M	12037	\$42,000	FOR, FR	No	
11	Construction and Maintenance of Forest Roads	A-21	2003-2005, 2008	10	N/A	M	12037	\$80,000	FOR, FR	No	
12	Fire Management	A-22	2001-2010	10	N/A	M	12037	\$109,000	FOR, FR	No	
13-a	Biological Monitoring: Complex-Wide Update of Inventory	A-24	2004 and 2008	10	1	M	12025	\$70,000	ENV, STA	No	
-b	Annual Monitoring	A-24	2003-2010	1	1	M	12025	\$40,000	ENV, STA	No	
14	Neotropical Migratory Bird Survey	A-25	2004	10	1	M	12025	\$35,000	ENV, STA	No	
15	Species Protection and Habitat Development	A-26	2001-2010 ¹	10	1	M	12036	\$99,230	ENV, STA, LY	No	
16	Nuisance Wildlife Management	A-28	2001-2010		2	S	12036	\$92,000	STA	No	

Key at end of table.

Table A-1

NAS PENSACOLA NATURAL RESOURCES PROJECTS

Project #	Project Description	INRMP Page Ref.	Scheduled Implementation (FY)	Prime Legal Driver	Navy Assessment Level (*2)	Funding Priority (*1)	Budget Criteria (*3)	Cost Estimate \$	Fund Source	NEPA Requirement	Date Project Completed
17	BASH Plan Management and Revision	A-30	2003-2010	2, 4, 7	1	M	12039	\$20,000	ENV, STA	No	
18	Interpretive Nature Trails (Natural Resources Education)	A-31	2003, 2005, 2007, 2008, 2010		2	S	12018	\$160,000	STA, AO	No	
19	Primitive Camping	A-33	2003, 2006, 2008		5	S	12018	\$11,000	STA, AO, NRR, MWR	No	
20	Orienteering	A-34	2003, 2004, 2007, 2008		5	S	12018	\$4,000	STA, AO	No	
21	Recreational Fishing	A-35	2003-2010	14	1	M	12036/12038	\$38,000	ENV, STA, FOR, MWR	No	
22	Natural Resources Staffing	A-37	2001-2010	2	1	M	00000	\$1,494,000	ENV, STA, FOR, AO	No	
23	Natural Resources Training	A-38	2001-2010	2	1	M	12940	\$85,000	ENV, STA, FOR, AO	No	
24	Natural Resources SCA Support	A-40	2001-2010		5	S	00000	\$82,000	STA, AO, SCAC	No	
25	Natural Resources Vehicles and Equipment	A-41	2001-2010	10	1	M	12999	\$178,000	STA, FOR, NRR	No	
26	Natural Resources Technology	A-42	2003-2010	2	1	M	12005	\$25,000	ENV, STA, FOR, AO, LY	No	
27	Natural Resources Public Relations	A-44	2003-2010		5	S	12999	\$18,000	STA, FOR, AO, NRR, LY	No	
28	INRMP Update and Revision	A-45	2005	2	1	M	12026	\$25,000	ENV	Yes	

Key at end of table.

Key:

- (*1) **M:** Mandatory Project **S:** Stewardship Project
- (*2) From EPR "Guidebook" (Cookbook); "N/A" Projects are funded with "Forestry Funds"
- (*3) "Guidebook Number" is from Chapter 12 of EPR Guidebook (Cookbook)

SOURCE OF FUNDS

STA	- Station O&MN	LY	- Legacy
FOR	- Forestry	ENV	- Environmental O&MN
AO	- Agricultural Outleasing	MWR	- Moral, Welfare & Recreation
NRR	- Natural Resources Reserve	UF	- User Fees
FR	- Forestry Reserve	SCAS	- SCA Coordinator

PRIMARY LEGAL DRIVERS

- | | |
|------------------------|--|
| (1) 7 USC 2814 | Management of undesirable plants on Federal lands (Federal Noxious Weed Act) |
| (2) 16 USC 670a-f | Sikes Act Improvement Act of 1997 |
| (3) 16 USC 1456 | Coastal Zone Management Act |
| (4) 16 USC 1531 & 1536 | Endangered Species Act |
| (5) 33 USC 1251 | Clean Water Act |
| (6) 16 USC 1955 | Magnuson Stevenson Fisheries Management Act |
| (7) 16 USC 703 | Migratory Bird Treaty Act |
| (8) 16 USC 2912 | Fish and Wildlife Conservation Act |
| (9) 16 USC 4808 | North American Wetland conservation Act |
| (10) 32 CFR 190 | Natural Resources Management Program |
| (11) EO 13148 | Greening the government through environmental management |
| (12) EO 13112 | Invasive Species |
| (13) EO 13089 | Coral Reef Protection |
| (14) EO 12962 | Recreational Fisheries |
| (15) EO 11990 | Protection of Wetlands |
| (16) DOD INST 4715.3 | Environmental Conservation Program |

Table A-2

NASP COMPLEX PROJECTS COST BY FY

Project #	Funding Priority	Cost by Fiscal Year										
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
1	M	-	-	-	\$20,000	-	-	-	\$45,000	-	-	\$65,000
2a	M	-	-	-	\$20,000	-	-	-	-	-	-	\$20,000
2b	M	-	-	-	\$15,000	\$10,000	\$10,000	\$3,000	\$3,000	\$3,000	\$3,000	\$47,000
3a	M	\$1,000	-	-	-	\$1,000	-	-	-	-	\$1,000	\$3,000
3b	M	-	-	-	\$6,000	\$14,000	\$14,000	\$10,000	\$10,000	\$10,000	\$10,000	\$74,000
4	M	-	-	\$25,000	\$15,000	\$15,000	\$25,000	\$15,000	\$15,000	\$15,000	\$15,000	\$140,000
5	S	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$10,000
6	S	-	-	\$2,000	\$3,000	\$3,000	-	-	-	-	-	\$8,000
7	S	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$360,000
8 (see Proj. 22)	M	-	-	-	-	-	-	-	-	-	-	\$0
9	M	\$2,000	-	-	\$2,500	-	\$3,000	\$3,000	-	-	\$3,000	\$13,500
10	M	\$18,000	\$14,000	-	-	-	-	\$4,000	\$6,000	-	-	\$42,000
11	M	-	-	\$15,000	\$25,000	\$15,000	-	-	\$25,000	-	-	\$80,000
12	M	\$24,000	\$12,000	\$7,000	\$7,000	\$5,000	\$5,000	\$7,000	\$7,000	\$28,000	\$7,000	\$109,000
13a	M	-	-	-	\$30,000	-	-	-	\$40,000	-	-	\$70,000
13b	M	-	-	5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$40,000
14	M	-	-	-	\$35,000	-	-	-	-	-	-	\$35,000
15	M	\$4,500	\$4,630	\$10,500	\$10,710	\$10,920	\$11,140	\$11,360	\$11,590	\$11,820	\$12,060	\$99,230
16	S	\$8,000	\$8,000	\$8,000	\$8,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$92,000
17	M	-	-	\$3,000	\$2,000	\$2,000	\$2,000	\$2,000	\$3,000	\$3,000	\$3,000	\$20,000
18	S	-	-	\$40,000	-	\$55,000	-	\$50,000	\$10,000	-	\$5,000	\$160,000
19	S	-	-	\$2,000	-	-	\$3,000	-	\$3,000	-	\$3,000	\$11,000
20	S	-	-	\$1,000	\$1,000	-	-	\$1,000	\$1,000	-	-	\$4,000
21	M	-	-	\$1,000	\$1,000	\$1,000	\$21,000	\$11,000	\$1,000	\$1,000	\$1,000	\$38,000
22	M	\$119,000	\$123,000	\$139,000	\$144,000	\$148,000	\$154,000	\$160,000	\$164,000	\$169,000	\$174,000	\$1,494,000
23	M	\$6,000	\$6,000	\$8,000	\$8,000	\$9,000	\$9,000	\$9,000	\$10,000	\$10,000	\$10,000	\$85,000
24	S	\$7,000	\$7,000	\$7,000	\$8,000	\$8,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$82,000
25	M	\$9,000	\$9,000	\$40,000	\$10,000	\$51,000	\$11,000	\$12,000	\$12,000	\$12,000	\$12,000	\$178,000
26	M	-	-	\$6,000	\$4,000	\$1,000	\$1,000	\$1,000	\$7,000	\$2,500	\$2,500	\$25,000
27	S	-	-	\$1,000	\$3,000	\$1,000	\$5,000	\$2,000	\$2,000	\$2,000	\$2,000	\$18,000
28	M	-	-	-	-	\$25,000	-	-	-	-	-	\$25,000
Total "M"		\$188,500	\$173,630	\$323,500	\$315,210	\$303,920	\$276,140	\$258,360	\$364,590	\$275,320	\$263,560	\$2,752,730
Total "S"		\$52,000	\$52,000	\$98,000	\$60,000	\$114,000	\$64,000	\$109,000	\$72,000	\$58,000	\$66,000	\$745,000
TOTAL ALL		\$235,500	\$220,630	\$357,500	\$420,210	\$426,920	\$335,140	\$362,360	\$436,590	\$328,320	\$324,560	\$3,447,730

Project No. 1:

Wetlands Management

Cost:

The cost of Project No.1 (total cost = \$65,000) is divided into two components:

- Wetland delineation at NOLF Bronson: \$20,000 (Year 2004);
- Wetland delineations/assessments at all properties: \$45,000 (Year 2008).

Purpose:

To ensure the conservation and protection of wetlands at the NASP Complex.

Goal and Objective:

Goal 1, Objective 1.1, Strategy 1.1.4 – Wetland Inventory and Assessment.

Goal 3, Objective 3.2, Strategy 3.2.2 – Wetland Habitat Monitoring.

Location:

Complex-wide.

Description:

In 2004, the NASP Complex will update wetland delineations at NOLF Bronson.

In 2008, the NASP Complex will update wetland delineations and perform wetland assessments at all Installations. Wetland delineations will address wetland size and type. Wetland assessments will address wetland quality. *Wetland Rapid Assessment Procedure (WRAP)*¹ or another acceptable wetland assessment method will be used.

This project also includes annual unplanned wetland review and delineation work in relation to base projects and other natural resources work. This portion of the project requires labor resources only and will be funded under Project No. 22.

Baseline:

Wetlands identified in the 1997 wetland inventory (i.e. approximately 650 acres at NASP, 100 acres at NETPDTC Saufley, and 0.5 acres at NTTC Corry) and the 1991 wetland inventory (i.e. approximately 250 acres at NOLF Bronson; see Section 2.5.7).

Monitoring:

Annual monitoring for wetland protection ensuring no net loss of wetlands.

Hours:

Estimated natural resources staff = 120 hrs./year; SCA RAs = 16 hours/year. Wetland delineations and assessments will be completed by contractors.

¹ Wetland Rapid Assessment Procedure (WRAP) is a wetland-rating index developed by the South Florida Water Management District to assist the regulatory evaluation of mitigation wetland sites (wetlands created, restored, enhanced, or preserved). The rating is used to evaluate a wide range of wetlands, but is not intended to compare different wetland community types to each other. See: <http://www.sfwmd.gov/org/reg/wrap99.htm>

Assessment Level:	Level 1.
Legal Drivers:	North American Wetlands Conservation Act, 16, U.S.C. 4808; Section 404 of the Federal Water Pollution Control Act (Clean Water Act), as amended, 33 U.S.C. 1251.
Related Legal:	Endangered Species Act, 16 U.S.C. 1531 et seq.; 32 CFR 190; Clean Water Act: Section 401 Water Quality Certification, 1986, 33 U.S.C. 1341; Executive Order (EO) 11990 – <i>Protection of Wetlands</i> , Section 5; OPNAVINST 5090.1B, par 22-5.3.c.

Project No. 2: Invasive and Exotic Plant Species Control

Cost:

Project No. 2 is divided into two sub-projects:

2a. Invasive and Exotic Species Survey and Control Plan: \$20,000;
and

2b. Invasive and Exotic Species Control: \$3,000-\$15,000 per year;
\$47,000 over 7 years.

Purpose:

To control invasive and exotic plant species at the Complex to acceptable levels to promote native ecosystems. Invasive and exotic plant species identified at the Complex include cogon grass, Japanese climbing fern, tallow tree, mimosa, Chinese privet, and camphor tree.

Goal and Objective:

Goal 1, Objective 1.2, Strategy 1.2.1- Invasive and Exotic Species Control Plan.

Goal 1, Objective 1.6, Strategy 1.6.1- Landscape Management.

Goal 1, Objective 1.6, Strategy 1.6.2 – Xeriscaping.

Goal 1, Objective 1.6, Strategy 1.6.3 – Urban Forestry.

Goal 5, Objective 5.3, Strategy 5.3.1 – Ecosystem Management Training Program.

Location:

Complex-wide.

Description:

The Complex will survey the extent of invasive and exotic species on all Installations, develop an invasive and exotic species control plan that will identify and describe invasive and exotic species, and schedule removal. This plan will be implemented to control invasive and exotic species to acceptable levels. During removal activities, the Complex will use pesticides with lower toxicity and apply at rates reduced below those specified on the label when it is believed that such modifications can adequately control the problem. The Complex will evaluate the effectiveness of the lower rates and will apply pesticides in accordance with label instructions if the lower rate applications are not adequately controlling the problem. The Complex will also consider the applicability of burning or hand clearing in combination with pesticides, as well as non-pesticide removal methods alone.

Baseline:

Baseline will be established during the survey phase of the project.

Monitoring:

NASP Complex will inventory previously treated areas annually to determine the effectiveness of the implemented removal methods. A Complex-wide inventory will be conducted every three years to ensure no new establishment of invasive and exotic species and to determine new areas requiring treatment.

Hours:	Initial Survey and Plan will be performed/developed by a contractor. Control work will be accomplished by a combination of Installation and contract personnel. Personnel not certified for pesticide application can only be used during non-chemical control portions of work. Estimated staff hours = 100 hrs per year (starting in 2003) to manage contracts and conduct in-house work.
Assessment Level:	Level 1.
Legal Drivers:	Executive Order (EO) 13112 – <i>Invasive Species</i> .
Related Legal:	Federal Noxious Weed Act of 1974, 7 U. S. C. 2801, Sec. 2814 (a); DOD Pest Management Program; Endangered Species Act, 16 U.S.C. 1531 et seq.; Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. 136; OPNAVINST 6240.4B, 27 August 1998.

Project No. 3: Beach Renourishment

Cost:	Project No. 3 is divided into two sub-projects: 3a. Beach Renourishment Permit: \$1,000 in 2001, 2005, and 2010; and 3b. Beach Renourishment: total project cost \$74,000.
Purpose:	Renew permit to renourish shoreline areas at NASP and Blue Angel Recreation Park, and to renourish the 18 miles of beaches.
Goal and Objective:	Goal 1, Objective 1.5, Strategy 1.5.1 – Shoreline Protection.
Location:	NASP and Blue Angel Recreation Park (BARP), NOLF Bronson.
Description:	Beach renourishment is the addition of sand to beaches to replace sand that has eroded away. The Navy has an existing Wetland Resources Permit (Permit Number 172768811) to renourish two beaches at BARP by placing onto them 3700 cubic yards of clean white sand. The permit was issued under the provisions of Chapters 373 and 403, Florida Statutes, Public Law 92-500, Title 62, and Rule 62-312, Florida Administrative Code. The permit expires November 13, 2000, and the project will renew the permit and add areas at NASP.
Baseline:	None.
Monitoring:	There are no requirements directly associated with this project; however, the Installation will generally monitor the condition of the beaches and the need for renourishment..
Hours:	Estimated natural resources staff hours to obtain permit = 16 hrs. (once every 5 years). Natural resources staff hours to renourish beaches = 40 hrs./yr.; and PWC staff hours to renourish beaches = 120 hrs./yr.
Assessment Level:	Level 1.
Legal Drivers:	Endangered Species Act, 16 U.S.C. 1531 et seq.
Related Legal:	Soil and Water Conservation Act, 16 U.S.C., Section 590 (a).

Project No. 4:

Establish Shoreline Vegetation

Cost:	\$15,000 -\$25,000 per year (for 7 years). Total project cost is \$140,000.
Purpose:	To restore coastal ecosystems in areas where erosion has occurred or vegetation has been removed, further enhancing future shoreline stability.
Goal and Objective:	Goal 1, Objective 1.5, Strategy 1.5.1 – Shoreline Protection. Goal 3, Objective 3.1, Strategy 3.1.1 –Habitat Development and Protection.
Location:	NAS Pensacola and Blue Angel Recreation Park at NOLF Bronson.
Description:	This project will establish native vegetation (such as sea oats) on sensitive shoreline areas, including areas renourished under Project No. 3. This project will benefit wildlife species through habitat enhancement, and it will decrease the need for future beach renourishment. This project will also enhance habitat for listed species adapted to beach/dune environments.
Baseline:	None.
Monitoring:	Monitoring will be performed in 2004, 2006, and 2008. Monitoring will include measures of aerial expansion of plantings.
Hours:	Establishment of vegetation will be performed by contractors; monitoring vegetation will be performed by natural resources staff. Estimated staff hours = 80 hours per year; estimated SCA RA hours = 32).
Assessment Level:	Level 1.
Legal Driver(s):	Natural Resources Management Program, 32 CFR 190.
Related Legal:	Executive Order 11990 (Wetlands Protection); Clean Water Act; Fish and Wildlife Conservation Act; 16 U.S.C. 2901 et seq.; Endangered Species Act, 16 U.S.C. 1531 et seq.; Soil and Water Conservation Act, 16 U.S.C., Section 590 (a).

Project No. 5:	International Coastal Cleanup
Cost:	\$1,000 per year; \$10,000 over 10 years.
Purpose:	To participate in International Coastal Cleanup, one time per year, to concentrate ongoing coastal cleanup efforts.
Goal and Objective:	Goal 1, Objective 1.5, Strategy 1.5.1 – Shoreline Protection.
Location:	NAS Pensacola and Blue Angel Recreation Park.
Description:	There are 17 miles of shoreline at NASP and one mile at BARP. The goal is to protect wildlife from potentially dangerous discarded items, such as fishing line and plastic holders for aluminum can six-packs. This is primarily a project of the SCA RAs to manage year-round clean-up efforts, culminating in the once per year International Coastal Cleanup. The International Cleanup, which occurs on the third Saturday in September, is carried out with volunteers.
Baseline:	None.
Monitoring:	An SCA RA conducts regular monitoring throughout the year, and coordinates smaller-scale cleanups with volunteer groups as needed. To date, three beach areas have been adopted by Installation volunteer groups: the Chiefs Association; Corry Child Development Center; and the Marines.
Hours:	Estimated natural resources staff = 60 hrs. per year; SCA RAs = 104 hrs. per year.
Assessment Level:	Level 5.
Legal Driver(s):	None.
Related Legal:	None.

Project No. 6:	Golf Course Habitat Conservation Plan
Cost:	\$8,000 over 3 years (2003-2005).
Purpose:	<p>The purpose of this project is to:</p> <ul style="list-style-type: none"> ▪ <u>Decrease</u> stormwater pollution, sedimentation, and pesticide and fertilizer needs; and ▪ Revise and implement the Habitat Conservation Plan for A.C. Read Golf Course; ▪ Implement environmentally-beneficial grounds maintenance practices (such as use of native landscaping); ▪ Manage the golf course in a manner consistent with ecosystem management goals of the NASP Complex; ▪ Reduce grounds maintenance costs; ▪ Improve wildlife habitat and reintroduce bird life, especially raptors that will eat rodents.
Goal and Objective:	Goal 3, Objective 3.1, Strategy 3.1.3 – Habitat Conservation Plan.
Location:	A.C. Read Golf Course, NASP.
Description:	<p>The HCP for A.C. Read Golf Course, prepared in 1997, recommends the renaturalization of out-of-play areas of the golf course by establishing native plant communities and allowing ecological succession to proceed. Wildlife such as resident and migratory bird species, small mammals, reptiles, and amphibians, will benefit from implementation of the HCP. Additionally, the establishment of natural vegetation should decrease labor and other maintenance costs.</p> <p>This project will also involve education of the grounds maintenance crew, and signs for golfers describing some of the project actions (such as why the vegetation in some areas is no longer mowed). Relocation of wildlife, such as owls and hawks, to the golf course may also be conducted. MWR will implement the HCP; the NRM will revise the plan, develop projects, and provide some funding of projects. The HCP will be revised in 2003.</p>
Baseline:	Existing Habitat Conservation Plan.
Monitoring:	As required.
Hours:	Estimated natural resources staff hours = 40 hours per year; SCA RAs = 40 hours per year. In addition, this project will depend on the use of volunteers such as Scout troops, Audubon Society members and university students, and base military groups.

Assessment Level:	Level 5.
Legal Drivers :	None.
Related Legal:	Sikes Act Improvement Act of 1997, 16 U.S.C. 670(a) et seq.; Fish and Wildlife Conservation Act, 16 U.S.C. 2901; EO 11990 – <i>Wetlands Protection</i> ; Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. 136; OPNAVINST 6240.4B, 27 August 1998; Endangered Species Act, 16 U.S.C. 1531 et seq.; 32 CFR 190; Federal Noxious Weed Act of 1974, 7 U.S.C. 2801-2814, Sec. 2814(a); Migratory Bird Treaty Act, 16 U.S.C. 703; Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended, U.S.C. ; Executive Order (EO) 13112 – <i>Invasive Species</i> .

Project No. 7: Urban Forestry (Tree City USA Recertification)

Cost:	\$36,000 per year; \$360,000 over 10 years.
Purpose:	Centrally manage urban forest maintenance, tree planting, and tree protection enhancing the quality of life on the Installation. This will allow participation and recertification in Tree City USA, a community development program sponsored by The National Arbor Day Foundation.
Goal and Objective:	Goal 1, Objective 1.6, Strategy 1.6.3 – Urban Forestry.
Location:	Complex-wide.
Description:	Urban tree management includes planting, removal, maintenance, and protection of urban trees and forests. In addition, urban forest management promotes and enhances the beauty of the Installation. Tree City USA is sponsored by The National Arbor Day Foundation in cooperation with the National Association of State Foresters, USDA Forest Service, U.S. Conference of Mayors, and National League of Cities. NAS Pensacola has achieved the “Tree City USA” award every year since 1996. To achieve the annual recertification, (as well as the initial award), four standards must be met: the establishment of a tree board or department which develops and implements a tree management program; development of a community tree ordinance; the expenditure of at least \$2 per capita, annually, for the forestry program; and the observance of a Navy Tree Awareness week.
Baseline:	Current program.
Monitoring:	Annual, in conjunction with Tree City USA recertification.
Hours:	Estimated natural resources staff = 240 hrs./year; estimated SCA RAs = 120 hrs./year.
Assessment Level:	Level 5.
Legal Driver(s):	None.
Related Legal:	Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a) (b) (1) (g); NASPNCLA Instruction 11015.1A.

Project No. 8:	Forest Administration
Cost:	Cost covered under Project No. 22 (Natural Resources Staffing).
Purpose:	Manage FMIS database and forestry GIS program, update 10-year forestry plan as needed; and determine annual increment.
Goal and Objective:	Goal 2, Objectives 2.1 – 2.4 – Forest Management. Goal 5, Objective 5.2, Strategy 5.2.3 - GIS Coverages.
Location:	Complex-wide.
Description:	This project includes various duties such as: <ul style="list-style-type: none"> ▪ Conducting timber inventories, ▪ Revising forest stand maps, and ▪ Updating FMIS database.
Baseline:	None.
Monitoring:	None.
Hours:	Estimated natural resources staff = 400 hours per year; estimated SCA RAs = 64 hours per year.
Assessment Level:	N/A.
Legal Driver(s):	Natural Resources Management Program, 32 CFR 190.
Related Legal:	Sikes Act Improvement Act, 16 U.S.C. 670 (a) et seq.; OPNAVINST 5090.1B, par 22-4.4.

Project No. 9:	Forest Product Sales
Cost:	\$13,500 over 10 years.
Purpose:	Properly manage forest resources by removing low quality trees, improving ecosystem health, lowering forest stand density, and producing periodic revenue.
Goal and Objective:	Goal 2, Objective 2.3, Strategy 2.3.1 – Forest Management.
Location:	Installation-wide.
Description:	This project involves the periodic sale of forest products including timber and pine straw. Annual salvage contract is available for timber removal from construction sites and/or following natural events such as fire, insect or disease infestations, hurricanes, tornadoes, or other natural disasters. Thinning and pine straw sales will occur in three years of the 10-year plan. Estimated income from forest products is approximately \$2,000 for salvage and \$80,000-\$120,000 for regularly scheduled sales.
Baseline:	The Installation, in coordination with EFD South, will update the FMIS to serve as the baseline for all forestry work.
Monitoring:	Annual monitoring for update of forestry plan.
Hours:	Estimated natural resources staff hours include = 320 per year; estimated SCA RAs = 80 hours per year.
Assessment Level:	N/A.
Legal Driver(s):	Natural Resources Management Program, 32 CFR 190.
Related Legal:	Sikes Act Improvement Act, 16 U.S.C. 670 (a)-(o); Military Construction Authorization Act – Sale of Certain Interests in lands, Logs, 10 U.S.C. 2665; Forest Resources Conservation and Shortage Relief Act, 16 U.S.C. 620; OPNAVINST 5090.1B, par 22-4.4.

Project No. 10:**Timber Stand Improvement (Herbicide Application and Fertilization)**

Cost:	\$42,000 over four years.
Purpose:	To improve the health and productivity of the forest stands.
Goal and Objective:	Goal 2, Objective 2.3, Strategy 2.3.1 – Forest Management.
Location:	NASP, Corry Station, and Saufley Field.
Description:	<p>For the purposes of this plan, timber stand improvement (TSI) activities include herbicide application to control understory vegetation and forest fertilization to improve site quality (see Section 5.2.1). Timber harvesting and prescribed burning may also be considered TSI activities and are addressed in Projects 9 and 12. However, this project is primarily geared toward the use of fertilizers and herbicides relative to stand management.</p> <p>Herbicide applications are scheduled to release young pine stands from competing vegetation and to reduce fuel loads in stands where burning cannot be accomplished. The use of herbicides on forest stands is an infrequent activity and does not contribute significantly to pesticide use on the Installation.</p> <p>Forest fertilization is used to improve timber production rates on average to poor quality sites. Combined with herbicide applications, prescribed burning, and thinning, fertilization will promote the more rapid development of the forest stand so that other ecosystem values can be realized. TSI activities will occur in Years 2001, 2002, 2007, and 2008.</p>
Baseline:	The Installation, in coordination with EFD South, will update the FMIS to serve as the baseline for all forestry work.
Monitoring:	Annual monitoring will occur to ensure effectiveness of herbicide and fertilizer applications and to determine needs for additional unplanned work.
Hours:	Estimated natural resources staff = 160 hrs/project year; SCA RAs = 20 hrs/project year.
Assessment Level:	N/A.
Legal Driver(s):	Natural Resources Management Program, 32 CFR 190.
Related Legal:	Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a)-(o); Environmental Natural Resources Protection Manual, 11015.2; Federal Noxious Weed Act of 1974, 7 U.S.C. 2801; Executive Order 13112 – <i>Invasive Species</i> ; DODINST 7310.5; OPNAVINST 5090.1B, par 22-4.2, par 22-4.3, par 22-4.4.

Project No. 11: Construction and Maintenance of Forest Roads

Cost:	<p>The cost Project No. 11 (total cost = \$80,000) is divided into two components:</p> <ul style="list-style-type: none">▪ Construction cost: \$25,000 in Year 2004; and▪ Maintenance costs: \$15,000-25,000 in Years 2003, 2005, and 2008.
Purpose:	Construct and maintain forest roads to provide access for management activities.
Goal and Objective :	Goal 2, all objectives and strategies.
Location:	Complex-wide.
Description:	Constructing and maintaining forest roads is necessary for access to conduct INRMP project work. Forest roads are also used by Installation Security and for mission-related activities such as emergency operations. Forest roads are often used as fire breaks and forests stand boundaries. New road construction will be determined as needed to accomplish planned projects. Maintenance includes resurfacing roads with additional crushed rocks or other material. Proper ditch construction and maintenance to control surface runoff from forest roads are also included in this project.
Baseline:	None.
Monitoring:	None.
Hours:	Estimated natural resources staff = 80 hours per year.
Assessment Level:	N/A.
Legal Driver(s):	None.
Related Legal:	None.

Project No. 12:

Fire Management

Cost:

The cost of Project No. 12 (total cost = \$109,000) is divided into two components:

- maintenance and minor equipment costs = \$5,000-\$12,000/ year; and
- major equipment purchases in 2001 and 2009 = \$24,000-\$28,000/ purchase year.

Purpose:

Prescribed fire is the primary management tool for the majority of INRMP goals and objectives. Many forest stands require prescribed burns to promote healthier, more sustainable forest resources, to reduce fuel loads, and to ensure the continuation of fire-dependent plant and wildlife species. In addition, wildland fires must be controlled as needed.

Goal and Objective:

Goal 3, Objective 3.1, Strategy 3.1.1 – Prescribed burning and habitat development.

Goal 3, Objective 3.2, Strategy 3.2.2 – Habitat enhancement programs.

Location:

Prescribed burns will be completed every three years in selected stands (see Tables B-3, B-4, B-5 and B-6). Urban forest prescription precautions will be in effect when burning close to base housing, administrative areas, and training areas. In addition, wildland fire control will be administered where needed.

Description:

Fire Management includes prescribed burning and wildland fire control. The Complex will burn forest stands on a three-year rotation or at the discretion of the Natural Resources Manager. On pine sites, burns will be hot enough to kill invasive hardwoods. Burns will be scheduled in the winter to reduce fuel loads to allow growing season burns in subsequent years. Prescribed burns will be scheduled in wetlands for habitat management. Dormant season burns can be alternated with growing season burns as long as fuel loading is reduced first. Wildland fire control will be administered as needed. Existing barriers such as roads and wetlands will be used as fire breaks where feasible, but firebreaks must be established and maintained where existing barriers are not present. Prescribed burning is dependent of weather conditions and mission-related activities. Equipment necessary to conduct fire management includes: crawler tractor; transport truck; all terrain vehicles (ATV's); and other fire ignition and suppression equipment. Training necessary for fire management is included in Project 24.

Baseline:

The Installation, in coordination with EFD South, will update the FMIS to serve as the baseline for all forestry work.

Monitoring:	Annual review of Forest Management to determine necessary program changes.
Hours:	Estimated staff hours = 600 per year; SCA RAs = 80 hours per year.
Assessment Level:	N/A.
Legal Driver(s):	Natural Resources Management Program, 32 CFR 190.
Related Legal:	Endangered Species Act, 16 U.S.C. 1531 et seq.; Federal Noxious Weed Act of 1974, 7 U.S.C. 2801; Executive Order 13112 – <i>Invasive Species</i> ; Sikes Act Improvement Act of 1997, 16 U.S.C., 670 (a)-(o); DODINST 7310.5; OPNAVINST 5090.1B, par 22-4.2, 22-4.3, and 22-4.4.

Project No. 13:

Biological Monitoring

Cost:

The Cost of Project No. 13 (total cost = \$110,000) is divided into two components:

- a. Complex-wide update of inventory for rare, threatened and endangered plant and animal species: \$30,000 in 2004 plus \$40,000 in 2008; and
- b. Annual monitoring for specific species such as gopher tortoise, bird species (including piping plover), and protected plants (including SAVs): \$5,000 per year.

Purpose:

To monitor the status and population of rare, threatened and endangered plant and animal species present on the Complex.

Goal and Objective:

Goal 3, Objective 3.1, Strategy 3.1.2 – Monitoring Program.

Location:

Complex-wide.

Description:

Surveys/inventories will assess the status, numbers, and distribution of species throughout the Complex. Monitoring projects will be completed in accordance with the cooperative agreement between the DoN, FFWCC, and USFWS. The overall purpose of this project is to ensure that appropriate management practices are established, because the success of these species is largely dependent upon human activities. Forest management should help maintain the habitat of various protected species and other native wildlife.

Baseline:

Existing, most recent surveys.

Monitoring:

The two monitoring components of this project will determine the need for activities to be carried out under the Species Protection and Habitat Development Project.

Hours:

Contractors will perform the inventories. Estimated natural resources staff hours = 80 hrs per year; estimated SCA RAs = 40 hrs per year. In addition, this project will depend on the use of volunteers such as Scout troops, Audubon Society members and university students, and base military groups.

Assessment Level:

Level 1.

Legal Driver(s):

Natural Resources Management Program, 32 CFR 190.

Related Legal:

Endangered Species Act, 16 U.S.C. 1535 (g) (1); Sikes Act Improvement Act of 1997, 16 USC 670 (a)-(o); Marine Mammal Protection Act of 1972, 16 USC 1361-1407; Fish and Wildlife Conservation Act, 16 U.S.C. 2901.

Project No. 14:	Neotropical Migratory Bird Survey
Cost:	\$35,000 (2004).
Purpose:	Complete a migratory bird inventory during the fall or spring migration to determine migratory bird species on the Complex and potential migratory bird management practices.
Goal and Objective:	Goal 3, Objective 3.2, Strategy 3.2.1 – Neotropical Migratory Bird Survey and Threatened and Endangered Species Surveys.
Location:	Complex-wide.
Description:	NASP will complete a neotropical migratory bird inventory on the Complex. From 1992 to 1999, NASP has participated in the Florida Audubon Society's annual Christmas Bird Count; while very useful, these counts do not occur during the peak times to census neotropical migratory birds. This project will include making results of the inventory a GIS data layer.
Baseline:	None.
Monitoring:	Completion of this survey will provide a baseline to develop appropriate migratory bird management techniques.
Hours:	This project will use contract personnel. Estimated natural resources staff hours = 80 (in 2004).
Assessment Level:	Level 1.
Legal Driver(s):	Natural Resources Management Program, 32 CFR 190.
Related Legal:	Fish and Wildlife Conservation Act, 16 U.S.C. Sec. 2912; Migratory Bird Treaty Act, 16 U.S.C. 703; Endangered Species Act, 16 U.S.C. 1531 et seq.; DOD 4715, Sikes Act Improvement Act of 1997, 16 USC 670 (a)-(o).

Project No. 15: Species Protection and Habitat Development

Cost:	\$99,230 over 10 years.
Purpose:	Conduct management and implement projects to enhance habitat for rare, threatened, and endangered species and natural communities.
Goal and Objective:	<p>Goal 3, Objective 3.1, Strategy 3.1.1 – Habitat Development and Protection.</p> <p>Goal 3, Objective 3.2, Strategy 3.2.2 – Threatened and Endangered Species' Habitat.</p>
Location:	Complex-wide.
Description:	<p>This project will involve the activities described below. The need to carry out specific projects in any given year will be determined by the Natural Resources Manager.</p> <p>Species Protection and Habitat Development Projects include:</p> <ul style="list-style-type: none">▪ Nest box management: Placing nest boxes for osprey, hawks, owls, migratory waterfowl, and blue birds.▪ Natural community prescribed burns: Burning specifically to benefit gopher tortoise habitat, pitcher plant prairies, and other plants.▪ Gopher tortoise protection: Placing signs in the vicinity of burrows to protect tortoises from grounds mowing activities, and educating grounds maintenance personnel.▪ Pitcher plant enhancement project: Enhancing habitat for pitcher plants at NASP, Saufley Field, and NOLF Bronson. An example project would be establishing pitcher plants in clear zones at NASP that are currently being mowed. At Saufley Field and NOLF Bronson enhancement would include prescribed burns.▪ Saufley Field bats: Maintain the availability of habitat for bats, and educate appropriate Installation personnel about occurrence and protection of bats.▪ Protected plant communities: Carry out activities to appropriately manage habitat for protected species. (i.e. SAVs, <i>Polygonella macrophylla</i> and <i>Chryopsis godfreyi</i>).▪ Honey bee management: Participate in Florida Department of Agriculture initiative to protect honeybee populations. Continue existing efforts to relocate honeybees from facilities to natural areas when needed.

- Other projects needed, as determined by the Natural Resources Program and Project 13 (Biological Monitoring).

Baseline:	Existing biological inventories and management activities.
Monitoring:	Results of specific projects will be monitored as needed. Formal monitoring will be conducted through Project 14, Biological Monitoring.
Hours:	Estimated natural resources staff hours = 160 hrs. per year; estimated SCA RAs = 120 hrs. per year. This project will also depend upon the use of volunteers such as Scout troops, Audubon Society members and university students, and base military groups. Contractors will be used for some projects, such as honeybee management.
Assessment Level:	Level 1.
Legal Driver(s):	Natural Resources Management Program, 32 CFR 190.
Related Legal:	Endangered Species Act, 16 U.S.C. 1531 et seq.; Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a) et seq; Fish and Wildlife Conservation Act, 16 U.S.C 2901 et seq.; EO 11990 – <i>Wetlands Protection</i> ; EO 13112 – <i>Invasive Species</i> ; OPNAVINST 5090.1B, par 22-4.2.

Project No. 16:

Nuisance Wildlife Management

Cost:

The cost of Project No. 16 (total cost = \$92,000) is divided into two components:

- Controlling nuisance wildlife populations (every year of 10 years); and
- Monitoring and managing deer that encroach runway areas at NASP (every year of 10 years).

Purpose:

To control nuisance wildlife and manage populations.

Goal and Objective:

Goal 3, Objective 3.3, Strategy, 3.3.1 - Nuisance Wildlife Control.

Goal 3, Objective 3.3, Strategy, 3.3.2 – BASH.

Location:

Complex-wide.

Description:

The first component of this project deals with nuisance wildlife species, such as rats and mice, raccoon, opossum, and squirrels, that may cause problems in urban/developed areas. Some birds, such as house sparrows, starlings, pigeons, grackles, and crows can also be considered nuisance species. Displaced wildlife, such as beavers, foxes, coyotes, and alligators, may also cause problems. The Complex would like to encourage the presence of wildlife in urban areas, while controlling nuisance species. The second component of this project is to deal with deer that encroach upon runway areas at NASP. The money for this component may be used for processing deer shot and killed in the base depredation program to provide the meat to a non-profit agency. Where appropriate, the money may also be used to trap and relocate deer.

Baseline:

None.

Monitoring:

Annual monitoring for beavers, foxes, coyotes, alligators, and deer, as well as birds (related to BASH). Through monitoring, establish population estimates and determine effectiveness of control.

Hours:

Estimated natural resources staff = 60 hours per year; estimated SCA RAs = 40 hours per year; FMD = 120 hours per year; Base Air Operations (Weapons Division) = 160 hours per year; PWC, Pest Control = 80 hours per year.

Assessment Level:

Level 2.

Legal Driver(s):

None.

Related Legal:

Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a) et seq; Endangered Species Act, 16 U.S.C. 1531 et seq.; Migratory Bird Treaty Act, 16 U.S.C. 703; 50 CFR 402, Interagency Cooperation – Endangered

Species Act of 1973; OPNAVINST 5090.B, par 22-6.4 (f); USMC-MCO P5090.2; Executive Order 13112- *Invasive Species*.

Project No. 17:**BASH Plan Management and Revision**

Cost:	\$2,000-\$3,000 per year; \$20,000 over 8 years (starting in 2003).
Purpose:	Implement management practices to minimize bird/animal aircraft strike hazard (BASH) incidents.
Goal and Objective:	Goal 3, Objective 3.3, Strategy, 3.3.2 – BASH.
Location:	NASP and Saufley Field.
Description:	<p>The BASH program was created to reduce the potential for aircraft/wildlife incidents. To prevent BASH-related incidents, it is essential to revise, implement, monitor, and enforce the plan. Implementation of the BASH Program in conjunction with Nuisance Wildlife Management is mission essential. The Aviation Safety Officer (ASO) is primarily responsible for the plan. The BASH Plan formalizes specific training, mapping, and habitat management plans.</p> <p>In conjunction with BASH Plan implementation, this project will include the following activities: revise the plan in 2003 and 2008; conduct training of air crew personnel; report and identify bird strikes; incorporate bird strike data into GIS and base mapping; and identify projects for FMD implementation (e.g. aquatic weed control, beaver control, ditch maintenance, habitat management in clear zones, and proper grounds maintenance). This project uses the results of monitoring activities conducted under the Nuisance Wildlife Management Project, as well as the Neotropical Migratory Bird Survey Project.</p>
Baseline:	Existing BASH Plan.
Monitoring:	See Project 17: Nuisance Wildlife Monitoring.
Hours:	Estimated natural resources staff =80 hrs. per year; SCA RAs = 40 hrs. per year; FMD staff = 80 hrs. per year; Air operations staff = 80 hrs. per year. In addition, this project will depend on volunteers and other agencies for implementation.
Assessment Level:	Level 1.
Legal Driver(s):	Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a) et seq.; Endangered Species Act, 16 U.S.C. 1531 et seq.; Migratory Bird Treaty Act, 16 U.S.C. 703.
Related Legal:	50 CFR 402, Interagency Cooperation – Endangered Species Act of 1973; OPNAVINST 5090.B, par 22-6.4 (f); USMC-MCO P5090.2.

Project No. 18: Interpretive Nature Trails (Natural Resources Education)

Cost: \$160,000 (starting in 2003).

Purpose: Maintain and construct interpretive nature trails to increase the quality of life for military personnel, DOD civilians, and the general public (where authorized), by providing additional outdoor recreation activities and opportunities to experience nature.

Goal and Objective: Goal 4, Objective 4.2, Strategy 4.1.2 – Expanded Recreational Facilities.

Goal 5, Objective 5.3, Strategy 5.3.1 – Training and Education.

Location: NASP, NOLF Bronson, Corry Station, and Saufley Field.

Description: Existing Nature Trails at the NASP Complex include: Trout Point Nature Trail, Sunec-Ke Indian Heritage Trail, Lighthouse Nature Trail, and Bayou Grande Nature Trail at NAS Pensacola; Saufley Field Nature Trail at Saufley Field; and the Blue Angel Recreation Park mountain bike trail, which will sometimes be used exclusively for hikers, at NOLF Bronson.

Proposed Nature Trails include:

- Trails connecting the U.S. Naval Hospital and Navy Housing at Corry Station to Jones Swamp Preserve. The connections would involve providing a cross-walk at two traffic lights on Highway 98, erecting signs near the traffic lights noting the trail connections, and constructing connecting trails.
- At NOLF Bronson (including BARP), this project will involve establishing a formalized trail system.
- National Park Service Cooperative Trail connecting the lighthouse, museum, Fort Barrancas, and the Navy Lodge.
- Dune walkovers at NASP to provide outdoor recreation and protect dune habitat.
- A trail connecting Trout Point Nature Trail to Installation MWR jogging trail and Lighthouse Nature Trail. Also, construct facility to provide drinking water.

Under this project, general maintenance (including repairs and minor improvements of constructed facilities) will also be performed. The Trout Point Nature Trail and the Saufley Field Nature Trail will be submitted to the Defenders of Wildlife to be included in their Watchable Wildlife Areas. Much of this work will be done using volunteer groups.

Baseline:	None.
Monitoring:	There are no requirements directly associated with this project; however, the Installation will closely monitor the provision of outdoor recreational opportunities and the carrying capacity of the resources being utilized.
Hours:	Estimated natural resources staff hours = 160 hrs. per year; SCA RAs = 160 hrs. per year. This project will be implemented using volunteers and other base support personnel.
Assessment Level:	Level 2.
Legal Driver(s):	None.
Related Legal:	Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a) (b) (1) (g); Regional Coordination and Outdoor Recreation - Federal/State Programs Act, U.S.C. 4601; EO 11989 – <i>Use of off-road vehicles on public lands</i> ; EO 12962 – <i>Recreational Fisheries</i> ; Americans with Disabilities Act of 1990, Public Law 101-336.

Project No. 19:**Primitive Camping**

Cost:	\$11,000 (over 4 years, starting 2003).
Purpose:	To maintain existing primitive camping areas and ensure that associated natural resources are not damaged by recreational use at Bayou Grande Nature Trail at NASP, and Saufley Field Nature Trail at Saufley Field.
Goal and Objective:	Goal 4, Objective 4.2, Strategy 4.1.2 – Expanded Recreational Facilities.
Location:	NASP and Saufley Field.
Description:	The two primitive camping areas (no facilities) are for Navy-sponsored youth groups and are designed to provide natural resources education and outdoor experiences. This project will: update the signs indicating camp sites; print brochures; update camping rules; and conduct minor restoration projects.
Baseline:	None.
Monitoring:	There are no requirements directly associated with this project; however, the Installation will closely monitor the provision of outdoor recreational opportunities and the carrying capacity of the resources being utilized.
Hours:	Estimated staff hours = 24 hrs. per year; SCA workers = 32 hrs. per year. This project will use volunteers, as needed.
Assessment Level:	Level 5.
Legal Driver(s):	None.
Related Legal:	Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (c); Regional Coordination and Outdoor Recreation – Federal/State Program Act, 16 U.S.C.4601.

Project No. 20:**Orienteering**

Cost:	\$4,000 (\$1,000/year over 4 years, starting in 2003).
Purpose:	To develop and provide an orienteering course for outdoor recreation opportunities and military training.
Goal and Objective:	Goal 4, Objective 4.2, Strategy 4.1.2 – Expanded Recreational Facilities.
Location:	Blue Angel Recreation Park, NASP.
Description:	To provide orienteering courses for outdoor recreation opportunities for authorized users and military training. There currently is not a location for Naval Aviation Schools Command Land Survival training. Implementing this project would provide a place for the military training as well as for other authorized groups (e.g. Scout troupes, military reserve units, and Civil Air Patrol). The project would involve surveying and establishing an orienteering course and checkpoints, using GPS. The course would be digitized into GIS. Also, a pamphlet describing the course would be prepared.
Baseline:	None.
Monitoring:	There are no requirements directly associated with this project; however, the Complex will closely monitor the provision of outdoor recreational opportunities and the carrying capacity of the resources being utilized.
Hours:	Estimated natural resources staff hours = 24 hrs.; SCA RAs = 32 hrs.; volunteers (military base personnel as available) will also be used.
Assessment Level:	Level 5.
Legal Driver(s):	None.
Related Legal:	Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a) et seq.; Regional Coordination and Outdoor Recreation – Federal/State Program Act, 16 U.S.C.4601.

Project No. 21:**Recreational Fishing**

Cost:	\$38,000 (starting 2003).
Purpose:	To maintain and improve existing recreational freshwater fishing opportunities at NASP, NOLF Bronson, and Saufley Field for active duty and reserve military personnel assigned to the Installation, their dependents and accompanied guests; federal civilian employees, their dependents and accompanied guests; and military retirees.
Goal and Objective:	Goal 4, Objective 4.2, Strategy 4.1.2 – Expanded Recreational Facilities.
Location:	NASP (Lake Frederick), NOLF Bronson (the beaver pond), and Saufley Field (Eightmile Creek).
Description:	<p>This project has four components:</p> <ul style="list-style-type: none">▪ ensure the availability of freshwater fish (such as bass, bluegill, sunfish, and catfish) through stocking, feeding, and fertilization programs in fish ponds and freshwater streams,▪ perform minor repairs on existing fishing facilities, such as boardwalks and piers,▪ allow for coordinating fishing regulations with security personnel and revising fishing instructions, as needed, and▪ include the development of recreational fishing public relations activities. <p>Through a cooperative agreement, the FFWCC will provide fish for stocking, as well as other services (such as pond analysis). Volunteer groups will participate in management activities.</p>
Baseline :	None.
Monitoring:	There are no major requirements directly associated with this project, but fisheries management needs will be determined on an annual basis. Also, the Complex will closely monitor the provision of outdoor recreational opportunities and the carrying capacity of the resources being utilized.
Hours:	Estimated natural resources staff hours = 40 hrs. per year; SCA RAs = 32 hrs. per year.
Assessment Level:	Level 1.
Legal Driver(s):	Executive Order (EO) 12962 – <i>Recreational Fisheries</i> .
Related Legal:	Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a) et seq.; Recreation Coordination and Outdoor Recreation - Federal/State

Programs Act, U.S.C. 4601; Military Construction Authorization Act – Military Reservations and Facilities- Hunting, Fishing, and Trapping, 10 U.S.C. 2671; Americans with Disabilities Act of 1990, Public Law 101-336.

Project No. 22:**Natural Resources Staffing****Cost:**

\$1,494,000 (\$119,000- \$174,000 per year for 10 years).

Purpose:

The purpose of this project is two fold:

- Funding to employ NRM and staff forester; and
- Conversion of the staff forester position from a temporary to a permanent position.

Goal and Objective:

All Goals and Objectives.

Location:

Complex-wide.

Description:

This project includes converting the temporary forester to a permanent employee in 2001 following the completion of the on-going Commercial Activities Study. Both the NRM and the forester position are classified as inherently governmental positions and are not subject to outsourcing. The NASP NRM also serves as the Regional NRM, which includes the NAS Whiting Field Complex. In addition, the forester also serves as the regional forester. Natural Resources personnel at Whiting Field include one Environmental Protection Specialist and two SCA students. The Whiting Field Natural Resources Program falls within the Regional Environmental Department with overall direction provided by the Regional NRM. Natural Resources projects and funding at NAS Whiting Field are covered separately by the INRMP for NAS Whiting Field.

Duties of the NRM are in NASPNCLAINST 11015.2A. The duties of the staff forester are to assist the NRM.

Baseline:

None.

Monitoring:

None.

Hours:

Estimated natural resources staff hours = 80 hours for oversight by NRM.

Assessment Level:

Level 1.

Legal Driver(s):

Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a) et seq.

Related Legal:

None.

Project No. 23:**Natural Resources Training**

Cost:	\$6,000-\$10,000 per year; \$85,000 over 10 years.
Purpose:	To ensure professional expertise and knowledge is kept current with science-based natural resources technology and research.
Goal and Objective:	Goal 5, Objective 5.1, Strategy 5.1.1 – Adequate staffing and training.
Location:	Complex-wide.
Description:	<p>Special training is required for the following programs:</p> <ul style="list-style-type: none">▪ Fire Management▪ Threatened and Endangered Species Management▪ Wetlands Management▪ Ecosystem Management▪ Technology (GIS/GPS)▪ Natural Resources Legal Requirements▪ Forest Management▪ DOT Requirements▪ Hazardous Waste Training▪ Safety Training▪ Pest Management <p>Many of the training programs lead to certifications that are required to perform the job (i.e. prescribed burning and wildland fire fighting, wetlands delineation, pest management, and DOT requirements).</p>
Baseline:	None.
Monitoring:	None.
Hours:	Estimated natural resources staff hours = 160 hours per year.

Assessment Level:	Level 1.
Legal Driver(s):	Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a) et seq.
Related Legal:	OPNAVINST 5090.1B, 22-5.7

Project No. 24: Natural Resources SCA Support

Cost:	\$7,000-\$9,000 per year, \$82,000 over 10 years.
Purpose:	To provide for two Student Conservation Association (SCA) resources assistants (RAs), per year, to help support the natural resources program at the NASP Complex and aid in accomplishing goals set forth in this INRMP.
Goal and Objective:	All Goals and Objectives.
Location:	Complex-wide.
Description:	<p>The SCA is a non-profit organization that provides student volunteers to government agencies for support in natural resources management. SCA students are acquired by the Navy through a partnership between the Naval Facilities Engineering Command and the SCA in New Hampshire. Each student works at the Complex for a period of 12 weeks. In addition to cost-sharing with SCA, the Navy provides the student no-cost housing (CBQ), as well as galley privileges at the Installation where she/he works. Funds come from the Agricultural Outleasing Program and are provided directly from NAVFACENGCOM to SCA.</p> <p>The SCA program is a primary support method for conducting regulatory natural resources management in the Department of the Navy. Two SCA students will provide approximately 1100 hours of support per year for natural resources management at the NASP Complex.</p>
Baseline:	None.
Monitoring:	None.
Hours:	Estimated natural resources staff hours =60 hours per year for oversight and supervision.
Assessment Level:	Level 5.
Legal Driver(s):	None.
Related Legal:	Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a) et seq.

Project No. 25:**Natural Resources Vehicles and Equipment****Cost:**

The cost of Project No. 26 (total cost = 178,000) is divided into two components:

- \$40,000 in 2003 for a new vehicle for the staff forester and \$51,000 in 2005 for a new vehicle for the NRM; and
- \$9,000 – 12,000 per year for vehicle maintenance, fuel, and natural resources management equipment and supplies.

Purpose:

To provide equipment and vehicles to the natural resources staff in order to carry out natural resources management objectives.

Goal and Objective:

All Goals and Objectives.

Location:

Complex-wide.

Description:

The NRM and staff forester manage natural resources at the NASP Complex (NASP, NOLF Bronson, Corry Station, and Sauflay Field) and at the NAS Whiting Field Complex (NAS Whiting Field and Outlying Landing Fields). Vehicles and equipment such as flagging tape, surveying equipment, diameter tapes, and other essential equipment are required to adequately manage the natural resources at the NASP Complex.

Baseline:

None.

Monitoring:

None.

Hours:

Estimated natural resources staff hours = 160 hours per year.

Assessment Level:

Level 1.

Legal Driver(s):

Natural Resources Management Program, 32 CFR 190.

Related Legal:

None.

Project No. 26:

Natural Resources Technology

Cost:	\$25,000 over 8 years (starting in 2003).
Purpose:	Obtain capabilities for color printing, digital photography, GPS mapping, and GPS/GIS mapping for monitoring projects. This also includes other recently-developed tools that would assist in natural resources management.
Goal and Objective:	Goal 5, Objective 5.1, Strategy 5.2.3 – Use of GIS and other technology.
Location:	Complex-wide.
Baseline:	None.
Monitoring:	None.
Description:	<p>Technological improvements will allow the Natural Resources Program to complete monitoring of all projects, produce monitoring reports and public relations products, compete for Navy and DOD awards programs, and prepare grant applications for special programs and projects. GIS data coverages could include:</p> <ul style="list-style-type: none">▪ Wetlands, waterbodies, water courses, and appropriate buffers;▪ Forest stands;▪ Natural communities;▪ Undisturbed and undeveloped 100-year floodplain;▪ Military constraint areas;▪ Map soil units and areas where soil type presents a threat of erosion;▪ Populations and habitats of endangered and threatened species and species of special concern;▪ Hazardous waste sites;▪ Land use;▪ Infrastructure and utilities;▪ NASP Complex boundaries and buildings;▪ Roads;▪ Cultural, natural, historical, or archeological resources;▪ Surface water quality monitoring stations;▪ Stormwater outfalls and monitoring stations; and

- Shoreline areas, submerged aquatic vegetation, and essential fish habitat;

The advancement and integration of GIS into all aspects of planning at the NASP Complex would reduce the expected work load for INRMP implementation.

Hours:	Estimated staff hours = 240; SCA RA hours = 40.
Assessment Level:	Level 1.
Legal Driver(s):	Sikes Act Improvement Act of 1997, 16 U.S.C. 670 (a) et seq.
Related Legal:	Endangered Species Act of 1973 (ESA) as amended, 16 U.S.C. Section 1531 et. seq.; Section 404 of the Federal Water Pollution Control Act (CWA), as amended, 33 U.S.C. 1251 et. seq.; Executive Order 11988 – Floodplain Management; Executive Order 12962 – Recreational Fisheries, Executive Order 11990 – Wetlands Protection; Executive Order 13112 – Invasive Species; Executive Order 13089 – Coral Reef Protection; reauthorized Magnuson-Stevens Fishery Conservation Act; OPNAVIST 5090.1B, par 22-4.3(d), 22-5.1, and 23-4.2.2.

Project No. 27:**Natural Resources Public Relations**

Cost:	\$1,000-\$5,000 per year; \$18,000 over 8 years.
Purpose:	To better inform/educate citizens and Complex personnel on the natural resources of the area.
Goal and Objective:	<p>Goal 5, Objective 5.3, Strategy 5.3.1 – Ecosystem Management Awareness.</p> <p>Goal 5, Objective 5.3, Strategy 5.3.4 – Citizen Participation.</p>
Location:	Project would cover natural resources Complex-wide.
Description:	<p>This project will include the following activities:</p> <ul style="list-style-type: none">▪ Produce informational newsletter (96 hrs. per year)▪ Conduct two educational programs per year for general public (96 hrs. per year)▪ Produce annual awards package (80 hrs. per year)▪ Conduct annual Earth Day program (24 hrs. per year)▪ Create web site (80 hours), including Natural Resources photo gallery (40 hrs.)▪ Produce natural resources videos (120 hrs. per video)▪ Write base and local newspaper articles (96 hrs. per year)
Baseline:	None.
Monitoring:	None.
Hours:	Estimated Natural Resources staff = 392 hours per year, 240 hours additionally; see above description.
Assessment Level:	Level 5.
Legal Driver(s):	None.
Related Legal:	None.

Project No. 28:**INRMP Update and Revision**

Cost:	\$25,000 (2005).
Purpose:	To update and revise the INRMP.
Goal and Objective:	Goal 5, Objective 5.4, Strategy 5.4.1 – INRMP Update and Revision.
Location:	Complex-wide.
Description:	<p>In accordance with OPNAVINST5090.1B 22-4.1[b], the INRMP will be reviewed on a yearly basis and re-approved every five years. The review process will take into account changes in military mission requirements and legal mandates and information obtained from monitoring programs and surveys. Revisions will be reviewed for consistency with the military mission, federal and state laws, and the ecosystem management goals and objectives of the INRMP.</p> <p>The revision process will be conducted under the direction of the NASP Complex CO; revisions will require consultation with and approval by the NASP Complex CO, the NASP Complex NRM, the NRM of the Engineering Field Division (EFD) of Southern Division, the USFWS, and the FFWCC.</p>
Baseline:	Existing INRMP; current surveys.
Monitoring:	NA.
Hours:	Estimated natural resources staff hours =240 hours in 2005.
Assessment Level:	Level 1.
Legal Driver(s):	Sikes Act Improvement Act of 1997, 16 U.S.C. 670 et seq.
Related Legal:	Executive Order 11990 – <i>Protection of Wetlands</i> ; Executive Order 13112 – <i>Invasive Species</i> ; Executive Order 12962 – <i>Recreational Fisheries</i> ; Section 404 of the Federal Water Pollution Control Act (Clean Water Act), as amended, 33 U.S.C. 1251; DODINST 7310.5; OPNAVINST 5090.1B, 22-4.1, 22-4.2, 22-4.3, 22-4.4; USMC-MCO P5090.2.

B	NASP Complex Forest Management Plan
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Table B-1														
STAND INFORMATION (FMIS 024), NASP COMPLEX, FLORIDA														
Stand No.	Acres	Cover Code	Origin Code	O Year	Trees per Acre	DBH (in)	Height (ft)	Basal Area	S VOL	% S VOL	H VOL	% H VOL	Growth (RPI)	Year
NAS Pensacola														
1	0	99	1	0	0	0	0	0	0	0	0	0	0.00	1993
2	29	84	1	1947	113	9	49	42	766	95	37	0	14.90	1995
3	0	99	1	0	0	0	0	0	0	0	0	0	0.00	1992
4	0	99	1	0	0	0	0	0	0	0	0	0	0.00	1992
5	0	99	1	0	0	0	0	0	0	0	0	0	0.00	1992
6	4	69	1	1965	250	5	30	34	675	0	90	0	10.00	1987
7	5	69	1	1965	350	6	35	68	1,260	0	180	0	10.00	1987
8	22	117	1	1934	173	9	55	46	685	79	187	0	15.30	1987
9	13	69	1	1967	196	7	42	49	677	0	134	0	6.70	1992
10	6	116	2	1962	218	8	55	74	1,491	18	0	0	6.70	1987
11	4	69	1	1973	275	6	36	57	961	0	23	0	10.40	1987
12	8	84	1	1953	369	8	53	69	1,013	38	193	0	6.20	1987
13	30	117	1	1959	321	6	41	66	994	3	121	0	12.40	1987
14	41	115	1	1944	221	9	57	80	1,358	51	222	0	12.20	1987
15	47	84	2	1977	475	6	34	93	1,710	0	0	0	4.50	1995
16	0	120	1	0	0	0	0	0	0	0	0	0	0.00	1993
17	0	99	1	0	0	0	0	0	0	0	0	0	0.00	1992
18	0	120	1	0	0	0	0	0	0	0	0	0	0.00	1993
19	9	119	1	1955	346	7	48	93	1,107	0	450	0	9.80	1987
20	3	72	1	1965	250	4	25	22	0	0	650	0	8.00	1987

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Table B-1														
STAND INFORMATION (FMIS 024), NASP COMPLEX, FLORIDA														
Stand No.	Acres	Cover Code	Origin Code	O Year	Trees per Acre	DBH (in)	Height (ft)	Basal Area	S VOL	% S VOL	H VOL	% H VOL	Growth (RPI)	Year
21	7	84	2	1987	870	1	1	5	0	0	0	0	0.00	1987
22	4	84	2	1982	450	3	25	23	0	0	0	0	5.00	1995
23	19	70	1	1958	164	9	44	46	882	20	30	0	9.80	1987
24	5	113	1	1955	265	7	51	71	1,080	0	90	0	11.00	1987
25	0	99	1	1996	0	0	0	0	0	0	0	0	0.00	1997
26	169	84	2	1977	513	6	39	80	1,847	0	0	0	5.00	1995
27	8	84	1	1950	150	8	60	52	1,013	20	0	0	10.00	1987
28	0	99	1	0	0	0	0	0	0	0	0	0	0.00	1992
29	10	84	1	1950	100	9	60	44	630	20	0	0	10.00	1987
30	21	83	1	1958	95	11	60	63	803	60	19	0	9.90	1991
31	47	84	1	1959	268	9	64	118	1,453	40	0	0	17.20	1991
32	24	70	1`	1960	84	10	60	46	477	60	15	0	10.00	1991
33	4	84	2	1982	334	3	24	17	0	0	0	0	5.50	1995
34	6	115	1	1955	326	8	53	90	1,312	21	290	0	14.20	1992
35	16	114	1	1988	0	0	0	0	0	0	0	0	0.00	1995
36	8	69	2	1994	900	1	1	1	0	0	0	0	0.00	1994
37	16	69	1	1940	76	11	58	50	759	60	36	0	16.40	1991
38	31	69	1	1936	188	9	58	67	1,093	34	166	0	19.80	1987
39	9	115	1	1975	600	7	35	160	2,700	0	180	0	6.00	1987
40	4	84	1	1949	207	11	81	82	1,650	42	154	0	8.30	1990
41	9	84	1	1959	363	9	63	140	3,151	9	0	0	12.50	1990
42	2	84	2	1987	740	3	28	36	0	0	0	0	4.20	1995

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Table B-1

STAND INFORMATION (FMIS 024), NASP COMPLEX, FLORIDA

Stand No.	Acres	Cover Code	Origin Code	O Year	Trees per Acre	DBH (in)	Height (ft)	Basal Area	S VOL	% S VOL	H VOL	% H VOL	Growth (RPI)	Year
43	9	84	1	1959	340	10	75	185	3,366	60	0	0	14.00	1987
44	52	104	1	1940	600	7	50	160	450	10	3,150	0	15.00	1987
45	28	116	2	1981	980	3	24	48	0	0	0	0	4.00	1995
46	12	69	1	1957	77	7	38	58	907	1	17	0	12.30	1987
47	24	117	2	1989	900	1	1	0	0	0	0	0	5.00	1990
48	55	84	1	1955	240	8	58	64	1,089	39	91	3	11.90	1987
49	2	84	1	1983	400	2	20	9	0	0	0	0	5.00	1989
50	23	84	1	1963	236	8	59	82	1,628	28	0	0	5.90	1987
51	3	70	1	1975	200	3	15	10	0	0	0	0	3.50	1992
52	33	84	2	1981	533	4	30	47	670	0	0	0	0.00	1993
53	3	69	1	1942	150	8	43	54	915	7	29	0	12.50	1987
54	4	85	1	1952	111	12	60	75	887	89	623	6	8.30	1987
55	5	112	1	1950	20	6	35	39	0	0	1,080	0	12.00	1987
56	28	115	1	1950	192	7	40	41	499	10	164	0	9.20	1987
57	6	112	1	1950	300	6	35	60	270	0	1,620	0	15.00	1987
58	14	84	1	1950	114	9	47	48	511	63	124	0	10.90	1987
59	17	84	1	1952	320	8	55	112	2,698	10	180	0	15.00	1987
60	26	85	1	1925	170	11	70	78	1,286	68	377	0	15.60	1987
61	9	115	1	1927	192	9	69	76	842	46	574	0	13.90	1992
62	36	84	1	1923	81	12	58	49	831	82	144	3	16.20	1987
63	14	115	1	1934	181	9	60	70	808	40	545	0	7.10	1992
64	26	119	1	1931	214	9	55	82	839	35	581	0	9.20	1992

Key at end of table.

Table B-1														
STAND INFORMATION (FMIS 024), NASP COMPLEX, FLORIDA														
Stand No.	Acres	Cover Code	Origin Code	O Year	Trees per Acre	DBH (in)	Height (ft)	Basal Area	S VOL	% S VOL	H VOL	% H VOL	Growth (RPI)	Year
65	14	70	2	1998	800	0	0	0	0	0	0	0	0.00	1998
66	17	69	1	1952	339	7	46	92	1,376	9	290	0	9.90	1987
67	54	84	2	1981	580	6	31	94	2,088	0	0	0	5.20	1995
68	5	84	2	1987	560	3	21	28	0	0	0	0	4.20	1995
69	5	84	2	1986	460	2	18	10	0	0	0	0	5.10	1995
70	6	101	2	1987	100	1	1	1	0	0	0	0	0.00	1987
71	3	84	2	1987	490	3	22	24	0	0	0	0	4.30	1995
72	19	70	2	1987	460	2	18	10	0	0	0	0	5.30	1995
73	4	84	1	1961	149	10	56	76	1,337	59	147	0	9.40	1987
74	25	103	1	1935	253	8	58	87	450	0	1,120	0	14.00	1995
75	2	84	1	1996	833	1	3	0	0	0	0	0	5.50	1996
76	38	84	1	1928	303	9	62	106	1,845	33	274	0	13.50	1987
77	2	70	1	1913	338	9	62	128	3,034	36	0	0	12.50	1992
78	17	84	2	1987	780	3	22	38	0	0	0	0	4.70	1995
79	18	84	1	1953	114	11	62	70	1,626	80	52	27	10.90	1987
80	6	85	1	1962	91	10	43	42	324	100	424	0	10.50	1987
81	78	84	1	1953	147	10	67	65	1,394	63	28	7	10.60	1987
82	11	83	1	1950	158	10	51	62	1,204	100	0	0	11.20	1987
83	3	118	1	1954	306	9	64	58	970	47	76	0	7.70	1987
84	4	84	1	1957	126	7	66	28	502	20	0	0	6.30	1987
85	7	84	1	1950	63	14	84	67	1,123	90	0	0	18.40	1991
86	10	84	1	1945	102	12	71	80	1,713	85	13	0	12.00	1991

Key at end of table.

Table B-1														
STAND INFORMATION (FMIS 024), NASP COMPLEX, FLORIDA														
Stand No.	Acres	Cover Code	Origin Code	O Year	Trees per Acre	DBH (in)	Height (ft)	Basal Area	S VOL	% S VOL	H VOL	% H VOL	Growth (RPI)	Year
87	4	84	2	1970	716	5	39	112	1,987	0	0	0	6.40	1987
88	6	84	1	1990	300	1	2	2	0	0	0	0	0.00	1990
89	0	99	1	0	0	0	0	0	0	0	0	0	0.00	1992
90	0	99	1	1997	0	0	0	0	0	0	0	0	0.00	1997
91	60	84	2	1977	277	4	20	24	210	0	0	0	8.50	1987
92	11	84	1	1956	140	11	64	92	516	70	0	0	12.50	1991
93	12	120	1	1953	194	10	67	74	1,008	65	433	0	8.50	1987
94	5	84	2	1977	430	3	29	21	0	0	0	0	4.60	1995
95	22	112	1	1965	340	6	28	67	0	0	1,530	0	14.00	1987
96	9	84	1	1968	285	8	54	99	1,226	0	0	0	4.20	1995
97	5	84	1	1949	115	13	83	106	2,050	85	48	0	12.10	1991
98	30	84	2	1982	567	2	20	12	0	0	0	0	4.80	1995
99	20	83	1	1947	187	10	62	68	1,289	54	113	0	10.80	1987
100	6	112	1	1955	127	6	30	20	0	0	450	0	12.80	1987
OLF Bronson														
1	146	89	1	1897	80	12	46	47	119	76	774	44	17.00	1986
2	0	99	1	0	0	0	0	0	0	0	0	0	0.00	1992
3	0	99	1	0	0	0	0	0	0	0	0	0	0.00	1992
4	2	103	1	1956	75	7	50	20	0	0	404	0	12.20	1986
5	5	83	1	1942	70	14	72	60	1,200	90	38	0	20.20	1993
6	2	113	1	1965	150	8	55	36	373	18	226	0	9.80	1993
7	75	84	2	1982	352	6	35	69	1,108	0	0	0	2.00	1995

Key at end of table.

Table B-1

STAND INFORMATION (FMIS 024), NASP COMPLEX, FLORIDA

Stand No.	Acres	Cover Code	Origin Code	O Year	Trees per Acre	DBH (in)	Height (ft)	Basal Area	S VOL	% S VOL	H VOL	% H VOL	Growth (RPI)	Year
8	1	84	2	1967	150	11	65	92	1,247	75	0	0	10.00	1993
9	23	84	2	1989	850	1	6	1	0	0	0	0	5.20	1989
10	10	84	1	1978	102	3	20	5	0	0	0	0	4.00	1986
11	0	99	1	0	0	0	0	0	0	0	0	0	0.00	1992
12	11	84	2	1971	250	9	65	90	980	40	0	0	8.10	1993
13	40	84	2	1994	700	1	1	1	0	0	0	0	0.00	1994
14	19	84	1	1960	600	7	60	140	2,600	12	0	0	4.00	1992
15	5	112	1	1993	0	0	0	0	0	0	0	0	0.00	1993
16	8	112	1	1966	50	5	30	14	180	0	360	0	12.50	1986
17	29	84	1	1960	125	8	60	48	1,420	10	0	0	6.00	1992
18	21	84	1	1966	90	9	65	56	540	30	0	0	7.00	1993
19	7	112	1	1966	200	5	35	27	0	0	450	0	15.00	1986
20	0	99	1	1997	0	0	0	0	0	0	0	0	0.00	1997
21	5	84	2	1970	334	6	38	50	744	8	0	0	7.70	1992
22	0	99	1	1997	0	0	0	0	0	0	0	0	0.00	1997
23	50	83	1	1961	60	9	60	27	800	10	0	0	6.00	1992
24	13	84	1	1966	55	8	60	20	623	0	0	0	6.00	1992
25	1	84	1	1961	115	8	50	40	619	0	0	0	6.00	1992
26	3	112	1	1966	250	3	25	13	0	0	90	0	9.00	1986
27	7	102	1	1966	131	7	45	35	235	0	236	0	6.00	1986
28	19	84	1	1972	65	9	55	35	360	0	0	0	5.00	1993
29	3	84	2	1989	780	1	8	1	0	0	0	0	6.00	1989

Key at end of table.

Table B-1

STAND INFORMATION (FMIS 024), NASP COMPLEX, FLORIDA

Stand No.	Acres	Cover Code	Origin Code	O Year	Trees per Acre	DBH (in)	Height (ft)	Basal Area	S VOL	% S VOL	H VOL	% H VOL	Growth (RPI)	Year
30	4	84	1	1987	300	1	2	0	0	0	0	0	0.00	1992
31	6	112	1	1976	350	3	25	17	0	0	0	0	8.50	1986
32	15	70	2	1989	970	0	0	0	0	0	0	0	0.00	1989
33	12	84	2	1989	660	1	7	1	0	0	0	0	5.50	1989
34	11	70	2	1989	830	0	0	0	0	0	0	0	0.00	1989
35	12	84	2	1989	810	1	7	1	0	0	0	0	5.60	1989
36	11	84	2	1994	800	1	1	1	0	0	0	0	0.00	1994
37	7	70	2	1998	870	0	0	0	0	0	0	0	0.00	1998
Corry Station														
1	2	84	1	1959	140	11	55	74	1,464	57	190	0	7.00	1987
2	0	99	1	1997	0	0	0	0	0	0	0	0	0.00	1997
3	2	84	2	1966	175	9	61	75	1,940	30	0	0	7.40	1995
4	5	84	2	1972	306	8	60	106	2,754	10	0	0	6.90	1995
5	2	84	2	1971	248	8	65	87	1,872	25	0	0	6.00	1995
6	2	84	2	1971	72	9	61	48	1,107	40	0	0	3.80	1995
7	1	84	2	1966	148	9	62	74	1,864	40	0	0	6.70	1995
8	3	84	2	1967	324	8	62	106	2,480	30	0	0	9.20	1995
9	6	84	2	1967	192	9	67	85	2,285	40	0	0	5.60	1995
10	5	84	2	1967	353	8	61	112	1,788	20	0	0	10.50	1995
11	14	84	2	1967	161	11	66	860	2,173	60	0	0	10.60	1995
12	3	84	2	1965	187	9	66	83	1,756	40	0	0	6.10	1995
13	9	84	2	1971	153	9	62	87	1,927	30	0	0	4.00	1995
14	10	84	2	1972	108	9	56	60	1,261	20	0	0	4.10	1995

Key at end of table.

Table B-1														
STAND INFORMATION (FMIS 024), NASP COMPLEX, FLORIDA														
Stand No.	Acres	Cover Code	Origin Code	O Year	Trees per Acre	DBH (in)	Height (ft)	Basal Area	S VOL	% S VOL	H VOL	% H VOL	Growth (RPI)	Year
15	7	84	2	1966	321	9	65	130	3,200	40	0	0	6.50	1995
16	2	84	2	1966	381	8	65	133	2,915	18	0	0	8.30	1990
17	2	84	2	1967	264	8	55	105	2,430	13	0	0	5.70	1990
18	2	84	2	1967	273	9	70	124	2,920	40	0	0	6.70	1990
19	2	84	2	1967	201	10	71	109	2,793	80	0	0	7.50	1995
20	7	84	2	1971	140	9	55	62	1,764	40	0	0	4.20	1995
21	5	84	2	1966	241	10	74	120	3,900	80	0	0	6.20	1995
22	11	84	2	1965	145	9	66	74	1,827	40	0	0	7.00	1995
23	1	84	2	1966	222	7	49	59	1,164	0	0	0	8.30	1990
24	1	84	2	1967	151	8	56	49	966	0	0	0	10.00	1990
25	2	84	2	1967	298	8	58	88	2,066	4	0	0	9.20	1990
Saufley Field														
1	57	83	1	1945	146	11	64	69	1,466	73	222	30	8.00	1995
2	5	81	2	1991	680	1	6	4	0	0	0	0	3.00	1994
3	4	83	1	1964	76	8	37	18	363	31	0	0	11.30	1988
4	3	81	2	1991	560	1	5	3	0	0	0	0	4.00	1994
5	43	102	1	1945	115	8	50	40	289	0	433	0	14.50	1986
6	42	70	1	1945	99	11	61	51	1,146	74	21	0	11.50	1986
7	3	112	1	1942	307	7	59	80	1,609	13	0	0	9.10	1986
8	9	70	1	1931	58	12	58	45	1,039	97	0	0	12.90	1986
9	3	102	1	1957	548	8	50	160	90	50	3,075	0	10.00	1988
10	6	113	1	1950	149	9	66	54	995	56	86	0	8.70	1986

Key at end of table.

Table B-1

STAND INFORMATION (FMIS 024), NASP COMPLEX, FLORIDA

Stand No.	Acres	Cover Code	Origin Code	O Year	Trees per Acre	DBH (in)	Height (ft)	Basal Area	S VOL	% S VOL	H VOL	% H VOL	Growth (RPI)	Year
11	0	99	1	0	0	0	0	0	0	0	0	0	0.00	2000
12	3	83	2	1974	123	5	30	18	289	0	0	0	7.30	1986
13	1	71	1	1969	20	7	35	6	69	0	36	0	8.10	1988
14	3	81	2	1991	600	1	6	3	0	0	0	0	3.00	1994
15	0	99	1	0	0	0	0	0	0	0	0	0	0.00	2000
16	0	99	1	0	0	0	0	0	0	0	0	0	0.00	2000
17	5	84	2	1972	417	4	30	36	292	0	0	0	4.80	1989
18	0	99	1	0	0	0	0	0	0	0	0	0	0.00	2000
19	2	114	1	1959	171	12	58	64	646	100	652	29	9.80	1986
20	2	83	2	1950	369	9	69	150	3,924	34	58	0	8.50	1986
21	0	99	1	0	0	0	0	0	0	0	0	0	0.00	2000
Total	2,487	--	--	--	--	--	--	--	--	--	--	--	--	--

Key:

Cover Codes:

69 = sand pine
 70 = long leaf pine
 71 = longleaf pine and scrub oak
 72 = southern scrub oak
 81 = loblolly pine
 83 = long leaf pine/slash pine
 84 = slash pine
 85 = slash pine/hardwood
 89 = live oak
 99 = no tree cover; deleted stand
 101 = bald cypress
 102 = bald cypress/water tupelo

103 = water tupelo/swamp tupelo
 104 = sweetbay/swamp tupelo/redbay
 112 = titi swamp
 113 = sand pine/long leaf pine/live oak
 114 = brush
 115 = sand pine/hardwood
 116 = sand pine/slash pine
 117 = sand pine/long leaf pine
 118 = sand pine/eastern red cedar
 119 = sand pine/ live oak
 120 = slash pine/long leaf pine/hardwood

Origin Codes:

- 1 = natural stand with no evidence of artificial regeneration.
- 2 = stand originating from planted stock.
- 3 = stand created by seeding.

Origin Year = Year of stand origin. Subtract from present year to get stand age.

Trees per Acre = Number of live trees of commercial species qualifying as desirable or acceptable trees.

DBH = Diameter at breast height in inches.

Height (ft) = Total tree height in feet rather than merchantable height.

BA = Basal area to nearest whole foot.

S VOL = Softwood volume to nearest cubic foot per acre.

H VOL = Hardwood volume to nearest cubic foot per acre.

Growth (RPI) = Average number of rings per inch for the last inch of diameter growth at DBH.

Key at end of table.

C

**Outdoor Recreational Opportunities
at the NASP Complex**

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TABLE C-1. CONCENTRATED OUTDOOR RECREATION OPPORTUNITIES AT NASP

Activity	Description	Management	Size of Area	Regulations Fees	Public Access	Carrying Capacity	Education Program	Needs/ Recommendations
Camping	Oak Grove Family Campground located on Pensacola Bay offers both RV and tent camping and cabins. A group camping area is available at the Bayou Grande Family Picnic Center.	Moral Welfare and Recreation Department (MWR).	48 RV 14 tent 12 cabins Scattered Primitive	Yes – See Text.	No	General guidelines for the state of Florida, four to seven camping units per acre.	No	Add ten new RV sites and eight new cabins to Oak Grove, replace water and electric hook-ups and install sewer to RV sites, renovate the bathhouse, plant screening vegetation around tent area and consider putting Oak Grove on a reservation system.
Picnicking	Three main facilities – Family Picnic Center, Barrancas Beach, and Oak Grove Family Camp. Individual sites can be found throughout the Installation.	Grounds maintenance and MWR.	Eight sites large enough to accommodate groups and numerous individual sites.	No	Yes	Recommended use guidelines – 8 users per picnic table per day.	No	Expand picnic facilities at the museum. Look into refurbishing the picnic area at NATTC and making it accessible for large groups.
Fitness/Jogging Trails	Primary jogging trail is the Captain Tom Anderson trail; the Sunec'ke Nature trail and the Lighthouse trails are also use frequently. A fitness trail is located along Radford Boulevard.	Active trail maintenance program.	Round trip length of jogging trail is 8 miles. The fitness trail consists of 17 stations and is 1.2 miles.	No	Yes	Recommended use guidelines – 138 users per mile of trail.	No	Consider expanding the existing jogging trail.
Swimming	Barrancas Beach, beautiful location on Pensacola Bay, includes areas for volleyball and picnicking.	MWR	1,500 feet of waterfront, white sand beach.	No	No	General use guidelines for Florida: 2.5 linear feet of beach per user per day.	No	Implement a plan to construct a permanent restroom facility at Barrancas Beach.
Archery	Not currently offered.	NA	NA	NA	No	NA	NA	Archery should be considered as a low cost outdoor recreation activity. A survey should be conducted to determine interest.
Boating (Motor)	Sherman Cove Marina offers boat launching, boat storage and rental equipment. The Sailing Facility also offers boat launching.	MWR	Three boat ramps, numerous storage facilities.	Yes	No	Florida's recommended use guidelines – 108 users per ramp per day.	No	Maintain existing program, continue providing and requiring a Captain's Class license for all persons renting boats.
Recreational Gardening	None currently available.	NA	NA	NA	No	NA	NA	Establish garden rental plots. Funds can be used to supplement the program.
Outdoor Education & Interpretation	No formal program currently exists.	NA	NA	NA	Yes	NA	NA	A program should be developed that focuses on the Trout Point and Bayou Grande Nature trails.
Off-Road Vehicles	None	NA	NA	NA	NA	NA	NA	NA

Source: NPS 1999a

TABLE C-2. DISPERSED RECREATION OPPORTUNITIES AT NASP

Activity	Description	Management	Units	Regulations Fees	Public Access	Carrying Capacity	Education Program	Needs/ Recommendations
Hunting	Not Authorized	NA	NA	NA	NA	NA	NA	NA
Fishing	Excellent opportunities for both saltwater, in Pensacola Bay and freshwater at Lake Frederic.	Natural Resource Management (NRM)	Saltwater, unlimited; freshwater 1.2 acres.	YES, state regulations and license. No fees.	No	Unlimited	None currently.	Maintain Allegheny pier, & consider user fees. Survey users to determine if needs are being met.
Hiking	Four existing nature trails and the walking/jogging trail.	NRM	Approximately eight miles.	None	Yes	20 users per mile of trail per day.	None	Encourage use of existing trails for hiking.
Nature Study	Significant, well developed nature trails.	NRM	Approximately five miles.	None	Yes	Same as hiking.	None currently.	Extend Big Lagoon Nature Trail approximately 1/8 mile to connect with the Trout Point Nature Trail.
Bicycling	Limited use on roads, no designated trails.	NRM	All open Installation roads.	None	Yes	General use guidelines for Florida, 80 users/mile/day.	None	Develop a base-wide multi-purpose/mountain bike trail. Consider adding a bicycle lane along Radford Boulevard.
Non-Motorized Boating/Canoeing	Installation Sailing Facility, Sherman Cove Marina and the family picnic center at Bayou Grande.	NRM	Three facilities.	Rental fees.	No	General use guidelines for Florida, 180 users/boat ramp lane/day.	None	Encourage expanded non-motorized boating use on Bayou Grande. Expand storage/mooring spots at the Sailing Facility.
Watchable Wildlife	Currently none.	None	NA	NA	NA	NA	NA	Follow the proper procedures to have Trout Point NT established as a Watchable Wildlife Area.

Source: NPS 1999a

TABLE C-3. CONCENTRATED OUTDOOR RECREATION OPPORTUNITIES AT NTTC CORRY AND BARP

Activity	Description	Management	Size of area	Regulations Fees	Public Access	Carrying Capacity	Education Program	Needs/ Recommendations
Camping	None *. RV, tent both individual and group and cabins **.	Morel Welfare and Recreation Department (MWR).	125 RV and tent sites, large group area, and 7 cabins.	Yes – See text.	No	General, four to seven camping units per acre.	None	Maintain existing program, continue plans to add campsites and cabins.
Picnicking	Pavilions and several individual tables *. Cabanas, and individual tables throughout **.	Grounds maintenance * MWR **	Three pavilions * Four cabanas **	None * Yes **, entrance fees.	No	Recommended use guidelines: 8 users per picnic table per day.	None	Evaluate existing picnic areas to determine if demand exceeds availability.
Fitness/Jogging Trails	Walking jogging trail and fitness trail *. None designated **	Active trail maintenance program.	Approximately four miles.	None	No	Recommended use guidelines: 138 users per mile of trail.	None	Promote and maintain existing trails and develop a map for trail locations *. Provide a jogging lane along the park road **.
Swimming	None * Beach swimming **	MWR	Two separate areas, approximately .3 miles.	Yes, entrance fees.	No	General use guidelines for Florida, 2.5 linear feet of beach per user per day.	None	Maintain existing program, try to alleviate the problems with beach erosion. Continue with plans to develop the “Bay Walk”.
Archery	None, currently.	NA	NA	NA	NA	NA	NA	Archery should be considered as a low cost recreation activity *. Survey for interest.
Boating (Motor)	None * Boat ramps and boat rentals **	MWR	Two ramps.	Yes, see text.	No	Florida’s recommended use guidelines, 108 users/ ramp/ day.	NA	Maintain existing program.
Recreational Gardening	None, currently.	NA	NA	NA	NA	NA	NA	Establish garden rental plots. Funds can be used to supplement program *.
Outdoor Education & Interpretation	None, the Installation lacks adequate resources, however, significant opportunities exist at BARP.	NA	NA	NA	NA	NA	NA	Significant resources are available for interpretation **
Paintball Warfare	Provided approximately twice per month *.	Liberty Recreation	Three acres, natural resource.	Yes	No	Unknown	None	Maintain existing program.
Challenge Ropes Course	None	NA	NA	NA	NA	NA	NA	Great program, resource exist on the Installation. Research in -depth, get advice from a reputable company before starting *.
Orienteering	None	NA	NA	NA	NA	NA	NA	Develop course and brochure with map at BARP, use SCA’s.

* Indicates NTTC Corry Station.

** Indicates Blue Angel Recreation Park. If no asterisk statement applies to both areas.

Source: NPS 1999b

TABLE C-4. DISPERSED RECREATION OPPORTUNITIES AT NTTC CORRY AND BARP

Activity	Description	Management	Size of area	Regulations Fees	Public Access	Carrying Capacity	Education Program	Needs/ Recommendations
Hunting	Not authorized.	NA	NA	NA	NA	NA	NA	NA
Fishing	None *, Saltwater opportunities in Perdido Bay, access from pier, beach and boat **.	NRM, updated regulations will be included in NAS Pensacola.	1 pier, 1 mile of coast and unlimited access to Perdido Bay **.	YES, state regulations and license. Entrance fees **.	No	Unlimited	None	Re-establish freshwater fishing at the old abandoned swimming pool, develop a management program. Publicize fishing opportunities more **.
Hiking	None designated. The walking/ jogging trail is used *.	NRM	4 miles *.	None *, Entrance fees **.	No	20 users per mile of trail per day. SNT = 30 users/day	None	Designate the walking/ jogging trail for hiking *. Designated multi-purpose trails throughout BARP, provide access to adjacent natural resource areas.
Nature Study	None currently.	NRM	NA	NA	No	Same as hiking.	NA	Provide access to the Jones Swamp State Preserve *. Develop nature study areas in conjunction with parts of the hiking trails **.
Bicycling	Limited, use roads, bicycles are rented at BARP.	NRM	All open, Installation roads	None *, Entrance fees **.	No	General guidelines for Florida, 80 users/ mile/day.	None	Add a bicycle lane along the Installation streets. Designate new trails as multi-purpose.
Non-Motorized Boating/ Canoeing	None *. Boat ramp access to Perdido Bay, MWR rents canoes, kayaks and sailboats **.	MWR	Two boat ramps **.	Entrance fees, and rental fees, see text **.	No	General use guidelines for Florida, 108 users/boat ramp lane/ day **.	None	Maintain existing program **.
Watchable Wildlife	Currently none.	None	NA	NA	NA	NA	NA	Work on developing viewing areas, then evaluate if a Watchable Wildlife program is feasible **.

* Indicates NTTC Corry Station.

** Indicates Blue Angel Recreation Park. If no asterisk statement applies to both areas.

Source NPS 1999b

TABLE C-5. CONCENTRATED OUTDOOR RECREATION OPPORTUNITIES AT NETPDTC SAUFLEY

Activity	Description	Management	Units	Regulations Fees	Public Access	Carrying Capacity	Education Program	Needs Recommendations
Camping	Primitive along the Saufley Nature Trail	NRM and local Scouts	5 sites	General primitive camping guidelines apply, no fee.	Yes, by special request.	Limited	None	Encourage all groups to use. Contact local Scout leaders for assistance in maintaining area.
Picnicking	6 Gazebos around office area. Dispersed throughout Installation.	Active management for site upkeep by maintenance staff.	6 gazebos, plus.	None	No	Recommended use guidelines: 8 users per picnic table per day.	None	Install electrical outlets and lighting at the large picnic gazebo.
Fitness/Jogging Trails	Perimeter road used for jogging. 20 station fit trail located near administration area.	Active trail maintenance program.	Perimeter road, 4.5 miles. Fit trail, 1.5.	None	No	Recommended use guidelines: 138 users per mile of trail.	None	Promote existing trails better. Develop a map for trail locations.
Archery	None, currently.	NA	NA	NA	NA	NA	NA	Archery should be considered as a low cost recreation activity. The old pistol range could be used for this. Survey for interest.
Boating (Motor)	None, Sufficient areas do not exist.	NA	NA	NA	NA	NA	NA	NA
Recreational Gardening	None, currently.	NA	NA	NA	NA	NA	NA	Establish garden rental plots. Funds can be used to supplement program.
Outdoor Education & Interpretation	None	NA	NA	NA	NA	NA	NA	Develop a program focusing on the natural resources found around the Saufley Nature Trail.

Source: NPS 1999c

TABLE C-6. DISPERSED RECREATION OPPORTUNITIES AT NETPDTC SAUFLEY

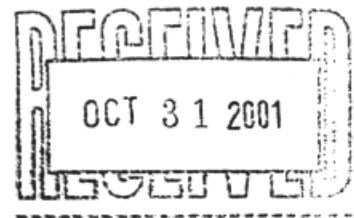
Activity	Description	Management	Units	Regulations Fees	Public Access	Carrying Capacity	Education Program	Needs/ Recommendations
Hunting	Not Authorized	NA	NA	NA	NA	NA	NA	NA
Fishing	Fresh Water fishing opportunities exist.	NRM See Exhibit B	Eight-mile Creek	YES, state regulations and license. NO base fees.	YES By request.	Limited capacity on the nature trail, unlimited elsewhere	None	Develop trails for access to Perdido Bay and Elevenmile Creek. Promote fishing opportunities.
Hiking	Saufley Nature Trail (SNT).	NRM	1.5 miles	None	YES By request.	20 users per mile of trail per day. SNT = 30 users/day	None	Expand Saufley Nature Trail and develop trail to Perdido Bay.
Nature Study	Saufley Nature Trail. Developed plant identification brochure.	NRM	1.5 miles	None	YES By request.	Same as hiking.	None	Expand the SNT and use the available resources there as the building stones for development of an Environmental Education Program.
Bicycling	Limited, use Installation roads (Perimeter).	NRM	All open, Installation roads	None	No	Unlimited	None	Add a bicycle lane along the Installation streets. Designate new trails as multi-purpose.
Non-Motorized Boating/Canoeing	None	NA	NA	NA	NA	NA	NA	NA
Watchable Wildlife	Currently none.	None	NA	NA	NA	NA	NA	Submit applications to designate the Saufley Nature Trail as a Watchable Wildlife Area.

Source: NPS 1999

D Fish and Wildlife Agency Correspondence



DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010



11015/43
Code ES13
October 24, 2001

Mr. Nick Wiley, Chief
Bureau of Wildlife Management, Division of Wildlife
Florida Fish & Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, FL 32399-1600

SUBJ: INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN (INRMP)
FOR THE NAVAL AIR STATION PENSACOLA (NASP) COMPLEX,
PENSACOLA, FLORIDA

Dear Mr. Wiley:

The enclosed final version of the NASP Complex INRMP has undergone an extensive review and comment period by the United States Fish & Wildlife Service (USFWS) and the Florida Fish & Wildlife Conservation Commission (FFWCC). Comments provided by these agencies are included in this INRMP as Appendix D. For your review, a table of the Navy response to the FFWCC comments is provided as an attachment.

We feel that the comments identified by the fish and wildlife agencies have been addressed appropriately within the INRMP document. Please review the correspondence from the agencies and provide concurrence by endorsing the signature page at the beginning of the document.

If you should have any questions, please contact David Trimm or Patty Valentine-Darby at (850) 435-8925.

Sincerely,

William A. Drawdy
Head, Natural Resources Branch

Enclosure:
Final Version of the NASP Complex INRMP

**FFWCC Agency Review Comments on the Proposed Integrated Natural Resources Management Plan
for NAS Pensacola Complex, Pensacola, Florida (see attached pages for entire FFWCC comment).
Comments Received October 2001**

Reviewer	Comment	Response
Lamonte	Section 1.5.2 Function and Use of the INRMP ... Text of the draft plan is inconsistent with the SAIA.	Comment pertains to Section 1.5.2 on page 1-9. We agree that one sentence in these two paragraphs seemed contradictory. To address this comment, the following sentence has been deleted from this section: "It is not necessarily the function of the INRMP to define specific projects for specific locations, nor to define specific practices or schedules for the individual components of natural resources management, which include land management, forestry, fish and wildlife, and outdoor recreation."
Lamonte	Section 3.8 Vegetation and Wildlife The statement "Although natural resources management seeks to improve ecosystems... cannot be obtained under current land use." ...seems contrary to developing a natural resources plan.	Comment refers to the last sentence of Section 3.8 on page 3-17. We agree that this sentence could be misconstrued. As mentioned in the sentences above this comment, only 7.5% of the land area remains in natural communities. According to the present land use, converting this entire area back to its original ecosystem quality would be impractical. The verbage has been changed to avoid miscommunication on the mission of the INRMP. The sentence now reads, "Natural resources management seeks to improve ecosystems, and return them to previous ecosystem quality to the extent practicable within the constraints of military mission requirements."
Lamonte	Section 4, Strategy 1.1.5 While BMPs do provide a baseline for timber management activities, BMPs often fall short of the mark when it comes to management to enhance forest habitats for wildlife. Forest management activities may have to go beyond BMPs to achieve objectives for wildlife.	Comment refers to Strategy 1.1.5 on page 4-6 of the INRMP. We agree that forest management must go beyond using BMPs. There are many goals, objectives, strategies, projects, and initiatives listed on the pages following 4-6 that focus on managing forests to provide wildlife habitat (e.g., see Objective 2.2 and its strategy, projects, and initiatives).
Lamonte	Section 4, Strategy 1.4.1 ...No mention is made in this strategy of re-using already disturbed but no longer functional areas. Impacts to natural areas would be avoided by removing decommissioned buildings and structures and using those locations for new facilities.	Comment refers to Strategy 1.4.1 on page 4-9. The recommendation was incorporated into the INRMP by adding an item to the Site Plan Activity Guidelines in Section 5.5, mentioned in Initiative (1). The following was added to the Site Plan Activity Guidelines on Page 5-81 (i.e., third bullet): <ul style="list-style-type: none"> ▪ Whenever possible, previously disturbed areas or decommissioned/vacant buildings or structures will be given a first priority for use when siting new facilities.
Lamonte	Section 4, Strategy 2.1.1 and 2.1.3 ...seem to emphasize maximum timber production. The integrated plan should use forest management and its silvicultural practices to maintain some timber production and enhance the habitat for wildlife.	We disagree that the emphasis of the forest management program at NASP is emphasizing maximum timber production. An 80-year rotation with only light thinnings scheduled once per location during the 10-year INRMP period is not concentrating on timber. Sixty-five percent of the forested areas are previous plantation sites that are overstocked with timber. The wildlife benefits to thinning are mentioned on p. 5-41. Thinning also reduces cover to enhance gopher tortoise habitat. These areas are the ones targeted for thinnings (not clearcuts), and, as seen in Appendix B, thinning will only occur one in ten years at Saufley, Corry, and Bronson, and two times in 10 years for NASP. Emphasis on timber production would be a 30-year rotation, with thinnings every year, clearcuts every year, and numerous site preparation and reforestation projects. This is not the case at the NASP Complex.

**FFWCC Agency Review Comments on the Proposed Integrated Natural Resources Management Plan
for NAS Pensacola Complex, Pensacola, Florida (see attached pages for entire FFWCC comment).
Comments Received October 2001**

Reviewer	Comment	Response
Lamonte	Strategy 3.2.2, Initiative 2 Refers to using the Commission's "habitat relocation and management guidelines" for listed species. It is unclear what guidelines this initiative refers to. Also, the Commission does not necessarily recommend relocation as the solution to listed species/development conflicts.	The comment pertains to Initiative 2 of Strategy 3.2.2 on page 4-17. To address the comment, this initiative was modified (i.e., made more general). Relocation of an animal would only be conducted if necessary, in coordination with the appropriate agency(ies), and in compliance with applicable laws. Initiative 2 was modified to read: "The NASP Complex will use FFWCC guidelines for the protection of listed species from proposed development or land clearing impacts. The NASP Complex will consult with FFWCC, USFWS, and/or Southern Division's wildlife biologists to implement this initiative."
Lamonte	Section 4, Strategy 3.3.1 Initiative 1 Discusses educating the public about potential wildlife problems and diseases. I would encourage.. personnel to educate the public on feral cat issues ...	Comment refers to p. 4-18. Presently, in Washington D. C., there is a draft of a Navy-wide feral cat policy in review. Any policy that is accepted on this issue will be added to the five-year update to the INRMP.
Lamonte	Section 5.1.4 Stormwater and Water Quality control ...other management issues... one that is not mentioned is wildlife management. This is particularly true for Saufley field where, up until recently, bats utilized stormwater drainage facilities. This issue should be addressed here (and under Section 5.3 Fish and Wildlife) to make sure future bat colonies are not impacted by maintenance of stormwater facilities..	We agree that personnel who work with stormwater and water quality control should be educated on the possibility of wildlife in stormwater drainage facilities. A bullet was added under "other management issues" on p. 5-21 that states: Train and educate all contract and department personnel on actions that may directly or indirectly affect wildlife (i.e. Actions that may affect bats living in stormwater drainage facilities, etc.) In Section 5.3, p. 5-56, "and prevent disturbance of known colonies" was added to the end of the second bullet.
Lamonte	Section 5.2 Forest Management 1st comment: This section is lacking in measurable goals and objectives. This section needs to provide more detailed discussion of desired future conditions and maintenance and enhancement for wildlife.	Comment refers to Section 5.2, which starts on page 5-36. We disagree with much of this comment (as discussed below), but agree that the goal of the program (already stated in Section 4) should be reiterated at the beginning of Section 5.2 on page 5-36. The following language was added to Section 5.2: "The NASP Complex will protect and enhance forest resources by practicing ecologically-sound forest management leading to sustained yield of quality forest products, watershed protection, and wildlife habitat protection and management. Ecologically-sound stewardship involves managing forestland for various components, including forest products, wildlife habitat, aesthetics, and recreation. Components of the NASP Complex annual work plan generally include prescribed burning, timber sales, timber inventory, site preparation, and reforestation. To protect and enhance forest resources, the Complex will implement the strategies, projects, and initiatives described in Section 4 of the INRMP.

**FFWCC Agency Review Comments on the Proposed Integrated Natural Resources Management Plan
for NAS Pensacola Complex, Pensacola, Florida (see attached pages for entire FFWCC comment).
Comments Received October 2001**

Reviewer	Comment	Response
Lamonte	Section 5.2, Forest Mgmt. 2nd Comment: Caution should be used when implementing site preparation activities...These areas may contain flatwoods salamanders...	No site preparation activities are scheduled for the NASP Complex in the INRMP's 10-year period. If site preparation becomes an unscheduled activity, the Navy will work with the USFWS to ensure protection of any threatened species. In addition, the FNAI (1997) has found no evidence of flatwoods salamanders on the NASP property. In Table 3-3, the flatwoods salamander is mentioned as a <i>typical</i> species found in a particular habitat, which doesn't necessarily mean that they are found in that area.
Lamonte	Section 5.2, Forest Mgmt. 3rd Comment: This section states that wetlands will be used as firebreaks. Tying in to wetland areas to create firebreaks can prove detrimental to that wetland system. Wetland systems require periodic fire and establishment of permanent firebreaks at wetlands can be detrimental.	Firebreaks are a necessary part of prescribed burning. Firebreaks are primarily established on the property boundary to prevent the escape of fire to adjacent lands. Firebreaks are not intentionally tied into wetlands. It is the desire of the Natural Resources Program to introduce fire, a natural component of the system, into wetlands. No changes were made to the INRMP based on this comment.
Lamonte	Section 5.2, Forest Mgmt. 4th Comment: Fertilization of forest stands implies that forest stands are being managed to maximize timber production rather than supporting ecological restoration goals.	Fertilization is a practice used in timber management; it will increase the health of the trees by decreasing their susceptibility to insects and disease. As shown in Appendix B of the INRMP, only 386 acres (out of 8,423) would be fertilized over the 10-year period.
Lamonte	Section 5.3.2 Wildlife Habitat Management and T & E Species This section is too vague. There are no specific measurable objectives for management of any of the listed species included in this plan. There is no information provided on the locations of listed species on NASP, current population levels, or recent trends in populations of listed species...	Comment refers to pages starting on 5-55. To reiterate the goals and objectives of wildlife habitat management, parts of goal 3 on p. 4-14 are repeated as an intro to this section. "The goal of wildlife management (as outlined on p. 4-14) is to protect, maintain, and restore native communities for plant and animal life, while improving the quality of life and ensuring the continuation of the military mission. The ecological integrity of wetland and upland communities will be maintained for the protection of native plant and animal species, including numerous federally and state listed species. Threatened, endangered, and species of special concern will be preserved and protected to ensure no reduction in species numbers or population sizes." Specific information on locations, population levels, etc. is not in the scope of the INRMP. Much of this information can be found in detail in the FNAI

**FFWCC Agency Review Comments on the Proposed Integrated Natural Resources Management Plan
for NAS Pensacola Complex, Pensacola, Florida (see attached pages for entire FFWCC comment).
Comments Received October 2001**

Reviewer	Comment	Response
		for NASP. Management practices pertaining to listed species can also be found in Section 3.8.2 (p. 3-17) and in Appendix A under Projects 13, 14, and 15.
Lamonte	<p>Section 5.3.3 Wildlife Damage and Diseases and Nuisance Wildlife</p> <p>1st Comment:</p> <p>On Page 5-67, several species are referred to as nuisances...The language here should make it clear that not all squirrels or coyotes...are nuisances.</p>	<p>This comment was incorporated, and the first sentence of the paragraph under Nuisance Wildlife and BASH (page 5-67) now reads:</p> <p>"Animals such as mice and rats, raccoon, opossum, armadillo, coyote, and squirrel may cause problems in urban/developed areas (such as when they occur in high numbers or in certain locations), and may be considered nuisance wildlife under such circumstances. Some birds, such as house sparrows, starlings, pigeons, grackles, and crows, may also be considered nuisance wildlife in some instances.</p>
Lamonte	<p>Section 5.3.3 Wildlife Damage and Diseases and Nuisance Wildlife</p> <p>2nd Comment:</p> <p>The statement "Migratory birds are protected under the Migratory Bird Treaty Act, while many non-migratory game birds are protected by state law," is incorrect. Non-migratory game birds are protected under the federal Migratory Bird Treaty Act as well.</p>	<p>Comment refers to a sentence on page 5-70. To incorporate this comment, the sentence was changed to read:</p> <p>"Migratory birds, and certain other birds, are protected under the MBTA."</p>
Lamonte	<p>Section 6.2.1 Protected Area 1 (P-1) and Section 6.2.2 Protected Area 2 (P-2)</p> <p>No mention is made in this plan of protection and management of shorebird nesting areas in dune habitat areas of P-1 and P-2....</p>	<p>Comment refers to page 6-3 and 6-6. A bullet in both of these sections applies to this idea generally and states "Projects will be implemented to protect and enhance natural communities and habitat for rare species;" Now at the end of both of these bullets is the parenthetical addition "(for example, shorebird nesting areas, etc.)."</p> <p>References to the protection of nesting shorebirds and the improvement and protection of dune habitats are found in Appendix A under Projects 3, 4, 14, and 15.</p>
Lamonte	<p>Section 6.3.2 Operational Protected Area 3 (OP-3)</p> <p>..forest stands on OP-3 will be managed for commercial production. Yet, the plan goes on to say that this area will be enhanced for wildlife including gopher tortoises...How will commercial forestry practices be compatible with management for wildlife?</p>	<p>As mentioned in the comments on Section 4, Strategies 2.1.1 and 2.1.3, NASP is not emphasizing commercial production in their forest management. The reduction in overstory through thinning is a harvesting option that will improve habitat for gopher tortoises by allowing sunlight to penetrate and allowing the groundcover and understory to flourish. In conjunction with prescribed burns, this strategy will help restore the environment to a closer representation of the natural community. Also, for most of the thinnings, only one will occur in each area for the 10-year period and each will only be about 2 weeks in duration. Every effort during this time period will be made to protect existing gopher tortoise populations.</p>

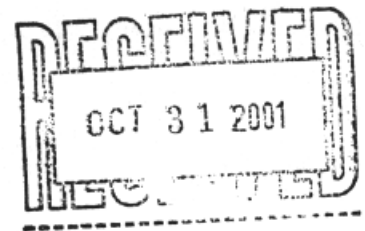
**FFWCC Agency Review Comments on the Proposed Integrated Natural Resources Management Plan
for NAS Pensacola Complex, Pensacola, Florida (see attached pages for entire FFWCC comment).
Comments Received October 2001**

Reviewer	Comment	Response
Lamonte	<p>Section 6.3.3 Protected Area 3 (P-3)</p> <p>... several listed wading bird species utilize Beaver Pond for foraging and some utilize it for nesting... outdoor recreation will be enhanced in this area...the plan should include management activities to ensure increased outdoor recreation does not cause disturbance to the heronry during the breeding season.</p>	<p>The creation of nature trails and increased fishing opportunities will only occur on a small portion of the Beaver Pond and will be created on a not-to-interfere basis. The heronry will have the majority of the pond still available during breeding and other seasons.</p>
Lamonte	<p>Section 6.5.1 Operational Protected Area 5 (OP-5)</p> <p>This section briefly discusses a possible project to maintain bat habitat on this area... Any stormwater management or maintenance of stormwater drains should be conducted so as to preclude or minimize impacts to bats...</p>	<p>This comment was previously addressed with the additions to Section 5.1.4 above. The following addition was also made to the last sentence on p. 6-24 under "other management practices": " , including stormwater drainage systems."</p>
Lamonte	<p>Other</p> <p>Mention is made in several sections of the plan of use of habitats by migratory birds. However, no mention is made of impacts to migratory birds from communication towers on site or of ways to minimize such impacts. This issue should be addressed in this plan. Siting and operation of communication tower facilities should follow the guidelines established by the USFWS...</p>	<p>To incorporate this recommendation, a bullet item was added to the list of Site Plan Activity Guidelines (to minimize impacts to the Complex's environmental and ecological resources) on page 5-81. The bullet begins "Implement guidelines recommended by the USFWS for reducing impacts to migratory birds (especially night-migrating species) from new communication towers..."</p>
Lamonte	<p>Other</p> <p>No mention is made in this plan of habitat management for roof-nesting least terns... Although not natural nesting habitat, these man-made nesting areas are important for this listed species...</p>	<p>Least terns were found on the beach areas during the 1996 FNAI survey, but none were found nesting on rooftops. According to FNAI, no roofs in NASP or Bronson are suitable for support of these colonies. Roof-nesting least terns have not been seen on NASP since the 1980s (per Mark Gibson, Natural Resources Manager).</p>

END OF COMMENTS



DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010



11015/43
Code ES13
October 22, 2001

U.S. Fish & Wildlife Service
Attn: Tom Sinclair, Regional Sikes Act Coordinator
1875 Century Boulevard, Suite 250
Atlanta, GA 30345

SUBJ: INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN (INRMP)
FOR THE NAVAL AIR STATION PENSACOLA (NASP) COMPLEX,
PENSACOLA, FLORIDA

Dear Mr. Sinclair:

The enclosed final version of the NASP Complex INRMP has undergone an extensive review and comment period by the United States Fish & Wildlife Service (Panama City Field Office) and the Florida Fish & Wildlife Conservation Commission. Comments provided are included in this INRMP as Appendix D.

We feel that the comments identified by the wildlife agencies have been addressed appropriately within the INRMP document. Please review the correspondence from the wildlife agencies and provide concurrence by endorsing the signature page at the beginning of the document.

If you should have any questions, please contact David L. Trimm or Patty Valentine-Darby at (850) 435-8925.

Sincerely,

William A. Drawdy
Head, Natural Resources Branch

Enclosure:
Final Version of the NASP Complex INRMP



STATE OF FLORIDA

DEPARTMENT OF COMMUNITY AFFAIRS

"Dedicated to making Florida a better place to call home"

JEB BUSH
Governor

STEVEN M. SEIBERT
Secretary

October 9, 2001

Mr. Gene Stillman
Ecology and Environment, Inc.
1950 Commonwealth Lane
Tallahassee, Florida 32303

RE: U.S. Department of the Navy - Environmental Assessment for the Implementation
of the Integrated Natural Resources Management Plan - Naval Air Station
Pensacola Complex - Pensacola, Escambia County, Florida
SAI: FL200106150380C

Dear Mr. Stillman:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the above-referenced project.

Based on the information contained in the environmental assessment for the implementation of the integrated natural resources management plan and the enclosed comments provided by our reviewing agencies, the state has determined that the above-referenced project is consistent with the Florida Coastal Management Program.

Thank you for the opportunity to review this project. If you have any questions regarding this letter, please contact Ms. Jasmin Raffington at (850) 922-5438.

Sincerely,

Shirley W. Collins, Acting Administrator
Florida Coastal Management Program

SWC/cc

Enclosures

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Comments from Florida Fish and Wildlife Conservation Commission

Naval Air Station Pensacola Complex Integrated Natural Resources Management Plan 2001-2010

Comments by Karen M. Lamonte, Bureau of Wildlife Diversity Conservation

Section 1.5.2 Function and Use of the INRMP

The Sikes Act lists required elements of INRMPs. These include "establishment of *specific* natural resource management goals and objectives and time frames for proposed actions." Therefore the statement in the plan, "It is not necessarily the function of the INRMP to define specific projects for specific locations, nor to define specific practices or schedules for the individual components of natural resources management," is inconsistent with the Sikes Act.

Section 3.8 Vegetation and Wildlife

This section states, "Although natural resources management seeks to improve ecosystems, a return to previous ecosystem quality cannot be obtained under current land use." This statement implies that little, if any, attempt will be made at restoration of undeveloped areas. This seems contrary to the intent of developing a natural resources management plan.

Section 4 Natural Resources Goals, Objectives, and Strategies

Strategy 1.1.5 calls for using BMPs for forest management activities. While BMPs do provide a baseline for timber management activities, BMPs often fall short of the mark when it comes to management to enhance forest habitats for wildlife. Forest management activities may have to go beyond BMPs to achieve objectives for wildlife.

Strategy 1.4.1 outlines initiatives to minimize impacts of future development on site. However, no mention is made in this section of re-using already disturbed but no longer functional areas. Impacts to natural areas would be avoided by removing decommissioned buildings and structures and using those locations for new facilities.

Strategy 2.1.1 and Strategy 2.1.3 seem to emphasize maximum timber production. This does not seem to fit with ecological restoration goals. Additionally, fertilization of forest stands, site preparation work, road construction, and firebreak use and management should be conducted in a manner that is supportive of habitat restoration rather than strictly supportive of timber production objectives. The integrated plan should use forest management and its silvicultural practices to maintain some timber production and enhance the habitat for wildlife.

Strategy 3.2.2 – Initiative 2 refers to using the Commission's "habitat relocation and management guidelines" for listed species. It is unclear what guidelines this initiative refers to. Also, the Commission does not necessarily recommend relocation as the solution to listed species/development conflicts.

Strategy 3.3.1 – Initiative 1 discusses educating the public about potential wildlife problems and diseases. I would encourage natural resources personnel to educate the public on feral cat issues and the threat feral cats pose to wildlife and humans. The American Bird Conservancy's *Cats Indoors!* program is particularly good.

Section 5.1.4 Stormwater and Water Quality Control

This section specifies other management issues that may be applicable to stormwater management. One item that is not mentioned is wildlife management. This is particularly true for Saufley Field where, up until recently, bats utilized stormwater drainage facilities. This issue should be addressed here (and under Section 5.3 Fish and Wildlife) to ensure that future bat colonies are not impacted by maintenance of stormwater facilities as has happened previously causing the abandonment of the colony.

Section 5.2 Forest Management

This section is lacking in measurable goals and objectives. This section needs to provide more detailed discussion of desired future conditions and maintenance and enhancement for wildlife.

Caution should be used when implementing site preparation activities. These areas may contain flatwoods salamanders which have declined in part due to silvicultural site preparation activities.

This section states that wetlands will be used a firebreaks. "Tying in" to wetlands areas to create firebreaks can prove detrimental to that wetland system. Wetland systems require periodic fire and establishment of permanent fire breaks at wetlands can be detrimental to that system. This is particularly true in areas containing flatwoods salamanders. The practice of tying in to wetlands should be reevaluated here.

Fertilization of forest stands implies that forest stands are being managed to maximize timber production rather than supporting ecological restoration goals.

Section 5.3.2 Wildlife Habitat Management and Threatened and Endangered Species

This section is too vague. There are no specific measurable objectives for management of any of the listed species included in this plan. There is no

information provided on the locations of listed species on NASP, current population levels, or recent trends in populations of listed species. This section should be much more detailed with measurable goals and objectives for listed species management.

Section 5.3.3 Wildlife Damage and Diseases and Nuisance Wildlife

On page 5-67, several species are referred to as nuisances. This language is misleading. The language used here should make it clear that not all squirrels or coyotes or opossums or crows are nuisances. But rather, that sometimes these animals in certain concentrations or in certain locations may constitute a nuisance. The language used here wholly characterizes all of these species as nuisances, which is untrue.

The statement, "Migratory birds are protected under the Migratory Bird Treaty Act, while many game birds are protected by state law," is incorrect. Non-migratory game birds are protected under the federal Migratory Bird Treaty Act as well.

Section 6.2.1 Protected Area 1 (P-1) and Section 6.2.2 Protected Area 1 (P-2)

No mention is made in this plan of protection and management of shorebird nesting areas in dune habitat areas of P-1 or P-2. Areas with shorebird nesting should be identified and protected from disturbance during the breeding season.

Section 6.3.2 Operational Protected Area 3 (OP-3)

This section specifies that the forest stands on OP-3 will be managed for commercial production. Yet, the plan goes on to say that this area will also be enhanced for wildlife including gopher tortoises. While commercial forestry isn't necessarily exclusive of wildlife, oftentimes management practices for commercial production are not very conducive to wildlife. How will commercial forestry practices be compatible with management for wildlife?

Section 6.3.3 Protected Area 3 (P-3)

This section states that several listed wading bird species utilize Beaver Pond for foraging and some utilize it for nesting. This section goes on to say that outdoor recreation will be enhanced in this area through the creation of nature trails near Beaver Pond and increased fishing opportunities. Although these outdoor recreation opportunities are not incompatible with wildlife use of the area, the plan should include management activities to ensure increased outdoor recreation does not cause disturbance to the heronry during the breeding season.

Section 6.5.1 Operational Protected Area 5 (OP-5)

This section briefly discusses a possible project to maintain bat habitat on this area. This is a good goal. The bat habitat of concern here is the man-made storm drains that occur under the runways. Any stormwater management or maintenance of stormwater drains should be conducted so as to preclude or minimize impacts to bats. This type of planning may have prevented the disturbance of the bat colony that caused abandonment of the site by the bats in 1999.

Other

Mention is made in several sections of the plan of the use of habitats by migratory birds. However, no mention is made of impacts to migratory birds from communication towers on site or of ways to minimize such impacts. This issue should be addressed in this plan. Siting and operation of communication tower facilities should follow the guidelines established by the U.S. Fish and Wildlife Service. These guidelines should be followed at new facilities, and lighting should be retrofitted at existing facilities. Additionally, decommissioned tower facilities should be removed since they are a potential migratory bird hazard.

No mention is made in this plan of habitat management for roof nesting least terns (*Sterna antillarum*). In the past, buildings in the Pensacola NAS complex have hosted least tern colonies. Although not natural nesting habitat, these man-made nesting areas are important for this listed species. Rooftop nesting habitat should be maintained and building managers should be educated about issues regarding this species.



IN REPLY REFER TO:

United States Department of the Interior

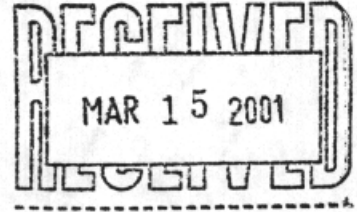
FISH AND WILDLIFE SERVICE

Field Office
1612 June Avenue
Panama City, FL 32405-3721

Tel: (850) 769-0552

Fax: (850) 763-2177

March 13, 2001



David L. Trimm
Project Manager
Ecology and Environment, Inc.
220 West Garden Street, Suite 404
Pensacola, Florida 32501

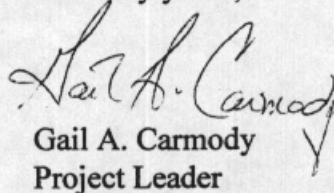
FWS Log # 4-P-00-029
INRMP for NAS Pensacola Complex
Public Review Draft
Santa Rosa County, Florida

Dear Mr. Trimm:

This is in response to the public review draft of the Integrated Natural Resources Management Plan (INRMP) for Naval Air Station (NAS) Pensacola Complex. The draft was transmitted to this office on February 9, 2001. The Fish and Wildlife Service provided comments to the preliminary draft in a letter dated January 30, 2001.

It appears that our earlier recommendations have been incorporated into the public review draft. We look forward to receiving the final plan for signature and to future coordination in implementing the plan. If you have any questions or comments, please contact Mr. Hildreth Cooper at extension 221.

Sincerely yours,


Gail A. Carmody
Project Leader



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United States Department of the Interior

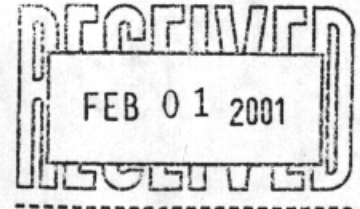
FISH AND WILDLIFE SERVICE

Field Office
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Fax: (850) 763-2177

January 30, 2001



Mr. Michael Letson
Project Manager
Ecology and Environment, Inc.
220 West Garden Street, Suite 404
Pensacola, Florida 32501

Re: FWS# 4-P-00-029
INRMP for NAS Pensacola Complex
Review of Draft Plan
Escambia County, Florida

Dear Mr. Letson:

The Fish and Wildlife Service (Service) has evaluated the above-cited plan. The following additional information is provided to assist in preparing the final Integrated Natural Resources Management Plan (INRMP) for the Naval Air Station Pensacola (NASP) Complex. Our report is submitted in accordance with provisions of the Sikes Act amendments.

The plan provides an excellent framework for future management of the natural resources of the NASP Complex. It accurately identifies important natural resource components and presents a practical program for implementation of specific management projects. Additional information we would like to see in the plan is divided into three categories:

- submerged aquatic vegetation (SAV)
- piping plovers
- sea turtles

For your information, enclosed is a map of SAV in the project area. The map was produced by the U.S. Geological Survey using 1992 aerial photography. Extensive beds of healthy seagrass occur primarily in Protected Area 1 (P-1). Sherman Cove is particularly notable for the presence of continuous seagrass beds in an area that supports high recreational boating use. Elements of the INRMP that could address seagrass conservation should be expanded. As with the other elements, there are several places within the plan where descriptions of the resources and

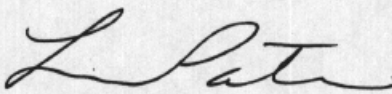
discussion of projects should occur. Potential projects that would address seagrass management include improved channel marking, warning signs or buoys in shallow areas, and informational signs at access points.

The plan notes that migratory bird censuses are conducted primarily in cooperation with the local chapter of the Audubon Society through their Christmas bird count. This activity occurs at an ideal time to locate wintering piping plovers (*Charadrius melodus*). The Service has recently proposed listing of critical habitat for piping plovers. Additional information from NASP would assist with management of this species throughout its range. We recommend that future bird censuses include a special element to emphasize piping plovers. We have enclosed a survey data form for piping plovers.

Previous correspondence from the Service included information regarding impacts of NASP operations to natural resources "off-site." In particular, it has been documented that outdoor lighting at NASP has caused disorientation for nesting and hatchling sea turtles at Gulf Islands National Seashore (GINS). We encourage the natural resources staff at NASP to work with GINS and the Service to identify potential solutions. It appears that the INRMP would be an appropriate mechanism for pursuing this effort.

We appreciate the opportunity to provide comments about the draft INRMP. We look forward to further coordination. Please contact Mr. Hildreth Cooper of this office (ext. 221) if you have any questions or comments.

Sincerely yours,


for Gail A. Carmody
Project Leader

Enclosures

HC/kh/c:/endspp/4p00029-1.wpd



ecology and environment, inc.

International Specialists in the Environment

220 West Garden Street, Suite 404

Pensacola, FL 32501

Tel: (850) 435-8925, Fax: (850) 435-9135

October 27, 2000

Mr. Rick McCann
Florida Fish & Wildlife Conservation Commission
620 S. Meridian Street
Tallahassee, FL 32399-1600

Re: Preliminary Draft Integrated Natural Resources Management Plan, Naval Air Station
Pensacola Complex

Dear Mr. McCann,

Per previous correspondence, E & E and the Navy would appreciate your review, comments and suggestions on the enclosed Preliminary Draft Integrated Natural Resources Management Plan for the Naval Air Station Pensacola Complex.

If you have questions concerning the document please feel free to give me a call at (850) 435-8925.

Sincerely,

David L. Trimm
Project Manager

dlt

cc: A. Johnson (SOUTHDIV)
G. Gallagher (E & E)
D. Heatwole (E & E)
file



ecology and environment, inc.

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220 West Garden Street, Suite 404

Pensacola, FL 32501

Tel: (850) 435-8925. Fax: (850) 435-9135

October 27, 2000

Ms. Gail Carmody
U.S. Fish and Wildlife Service
1612 June Avenue
Panama City, FL 32405-3721

Re: Preliminary Draft Integrated Natural Resources Management Plan, Naval Air Station
Pensacola Complex

Dear Ms. Carmody,

Per previous correspondence, E & E and the Navy would appreciate your review, comments and suggestions on the enclosed Preliminary Draft Integrated Natural Resources Management Plan for the Naval Air Station Pensacola Complex.

If you have questions concerning the document please feel free to give me a call at (850) 435-8925.

Sincerely,

David L. Trimm
Project Manager

dlt

cc: A. Johnson (SOUTHDIV)
G. Gallagher (E & E)
D. Heatwole (E & E)
file



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United States Department of the Interior

FISH AND WILDLIFE SERVICE

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November 30, 1999



Mr. Michael Letson
Project Manager
Ecology and Environment, Inc.
220 West Garden Street, Suite 404
Pensacola, Florida 32501

Re: FWS# 4-P-00-029
INRMP and EA for Pensacola NAS
Initial Request for Information
Dated October 14, 1999
Escambia County, Florida

Dear Mr. Letson:

The Fish and Wildlife Service (Service) has evaluated the above-cited request. Based on a recent telephone discussion, it appears that you have accurately anticipated most of our comments. The following additional information is provided to assist with your studies for the Integrated Natural Resources Management Plan (INRMP) for the Naval Air Station (NAS) Pensacola Complex. We understand that the INRMP for the Whiting Field Complex will be prepared separately. Our report is submitted in accordance with provisions of the Sikes Act amendments.

Enclosed is a table of threatened, endangered, and other special status species likely to occur in Escambia County, Florida. The table is a combination of species occurrence and habitat information developed by the Florida Natural Areas Inventory (FNAI), and species status data compiled by the Florida Fish and Wildlife Conservation Commission (FWCC).

The FNAI is a statewide database housing extensive information on the occurrence of rare and endangered species and high quality natural communities in Florida. The FNAI can be contacted at 1018 Thomasville Road, Suite 200-C, Tallahassee, Florida 32303, (850) 224-8207. The FWCC may have additional information on state-listed species and important habitats. The FWCC Environmental Services Division is located at 620 South Meridian Street, Tallahassee, Florida 32399-1600, (850) 488-6661. We suggest coordinating with the FNAI and the FWCC.

We have in the past worked closely with the Natural Resources staff at NAS regarding wildlife and habitat conservation issues. Important natural resources at NAS include the following:

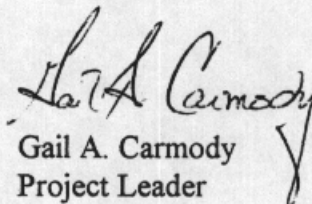
- Freshwater wetlands
- Seagrass beds
- Estuarine marshes
- Coastal habitats and listed species

The INRMP should pay particular attention to these habitats and their conservation, restoration, and management. In addition, we would like to see an evaluation of secondary impacts of facility operations on these habitats that are located in the vicinity of NAS. Significant secondary impacts include the construction of housing and infrastructure in Southwest Escambia County to accommodate NAS personnel. Cumulative impacts to wetland resources in the vicinity have been of particular concern to the Service.

Other "off-site" impacts to natural resources have been documented at nearby Gulf Islands National Seashore (GINS). GINS staff has reported disorientation of nesting and hatchling sea turtles caused by lighting from NAS. This information was recently provided to you by Mr. Mark Nicholas of GINS. The INRMP should evaluate opportunities to work cooperatively with the Service and GINS in reducing light disorientation.

We appreciate the opportunity to provide preliminary comments and we look forward to further coordination. Please contact Mr. Hildreth Cooper of this office (ext. 221) if you have any questions or comments.

Sincerely yours,


Gail A. Carmody
Project Leader

Enclosures

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Florida Fish and Wildlife Conservation Commission

James L. "Jamie" Adams, Jr.
Bushnell

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Jacksonville

Quinton L. Hedgepeth, DDS
Miami

H.A. "Herky" Huffman
Deltona

Thomas B. Kibler
Lakeland

David K. Meehan
St. Petersburg

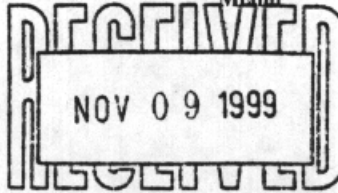
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Sarasota

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November 3, 1999

Mr. Michael Letson
Ecology and Environment, Inc.
220 West Garden Street, Suite 104
Pensacola, FL 32501

Re: Naval Air Station Complex,
Pensacola, FL

Dear Mr. Letson:

Your letters of September 18, 1999, and October 14, 1999, to Dr. Allan Egbert have been referred to me for response. In your letters, you requested (1) input concerning natural resources in the vicinity of Pensacola Naval Air Station, (2) a point of contact for consultation during the development of a natural resources management plan and an environmental assessment, and (3) the person ultimately responsible for the approval of the plan by our agency. The Office of Environmental Services (OES) of the Florida Fish and Wildlife Conservation Commission (FWC) is the part of our agency responsible for intergovernmental coordination on matters such as those described in your letter. Although we typically have no authority for approval of plans such as the one you describe, we are more than willing to provide you with information concerning fish and wildlife resources in the study area and to coordinate the review of the eventual documents within FWC. I am designating Mr. Rick McCann as our point of contact for this project. You may contact Mr. McCann in writing at the address above or by calling 850-488-6661.

If you need additional information concerning this matter, please contact either me or Mr. McCann at your earliest convenience.

Sincerely,

Bradley J. Hartman, Director
Office of Environmental Services

ENV 1-1
cc: Mr. Rick McCann